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In Memory of
STEPHEN SPAULDING
1907 - 1925
CLASS of 1927
UNIVERSITY OF MICHIGAN

March 1927

112
62
175

SEP 29 1905

THE HAWAIIAN ANNUAL

THE
RECOGNIZED
BOOK
OF
INFORMATION
ABOUT
HAWAII



1905



SINGLE COPIES
75 CTS.

Thos. C. Thrum
Compiler Publisher
HONOLULU, T. H.

BY MAIL 85 CTS.

Thirty First Year

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Oahu Railway and Land Co.



THIS COMPANY is now running to KAHUKU, 71 miles from Honolulu. The equipment of the road is first-class in every particular. EXCURSION RATES are maintained from Saturday morning till Monday of each week. A delightful ride through varied and unsurpassed Scenery make excursions on the OAHU RAILWAY one of the most attractive features of the Islands, not only to the Tourists, but residents of Honolulu as well. The opportunity to visit a large Sugar Estate should not be missed by those visiting these Islands, and among others on the line of the Railway is the Ewa Plantation, the largest in the Islands, its crop yielding 29,797 tons of sugar in 1904.

PEARL CITY

Located at the famous PEARL HARBOR, the proposed coaling and naval station of the United States, has been laid out in streets and provided with an excellent system of water works. Over \$100,000 in lots have been sold to 140 different purchasers, and a number of residences already erected; a few very desirable lots may yet be had on VERY EASY TERMS.

MALEIWA MOTEL

At WAIALUA is a beautiful new Hotel, of the most modern construction and equipment, in which guests will find all possible comfort and entertainment, combined with elegance of furnishing, tropical surroundings and healthful atmosphere. The view from the Hotel embraces Sea, Mountain and Valley in a combination not to be enjoyed elsewhere.

B. F. DILLINGHAM, General Manager.

G. P. DENISON,

F. C. SMITH,

Superintendent.

Gen'l Passenger and Ticket Agent.

Thrum's

HAWAIIAN

Almanac and Annual

FOR

—1905—



THE REFERENCE BOOK OF INFORMATION AND STATISTICS

RELATING TO THE TERRITORY OF HAWAII, OF VALUE TO
MERCHANTS, TOURISTS AND OTHERS.



THOS. G. THRUM,

Compiler and Publisher.

Thirty-First Year of Publication

Copyright 1904, by Thos. G. Thrum.

HONOLULU:
1904.

Counting House Calendar

Maj. Thomas M. Spaulding
gt.
9-26-1923

Stephen Spaulding mem call

551277 (Apr. 1938)

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HAWAIIAN ANNUAL CALENDAR FOR 1905.

Second half of the seventh year and first half of the eighth year since annexation of Hawaii with the United States.

Twelfth year since the downfall of the Monarchy.

The 127th year since the discovery of the Hawaiian Islands by Captain Cook.

HOLIDAYS OBSERVED AT THE HAWAIIAN ISLANDS.

*New Year	Jan. 1	*American Anniversary	July 4
Chinese New Year	Feb. 3-4	*Labor Day (First Monday) ..	Sept. 4
*Washington's Birthday ...	Feb. 22	*Regatta Day (Third Sat.) ..	Sept. 16
Good Friday	April 21	Recognition of Hawaiian	
*Decoration Day	May 30	Independence	Nov. 28
*Kamehameha Day	June 11	Thanksgiving Day	Nov. 24
*Birthday Hawaiian Republic.	July 4	*Christmas	Dec. 25

Those distinguished by an Asterisk have been established as Territorial Holidays by Legislative enactment; see Laws 1903, Act 55.

CHRONOLOGICAL CYCLES.

Dominical Letter	A	Solar Cycle	10
Epact	24	Roman Indiction	3
Golden Number	6	Julian Period	6618

CHURCH DAYS.

Epiphany	Jan. 6	Whit Sunday	June 11
Ash Wednesday	March 8	Trinity Sunday	June 18
First Sunday in Lent ...	March 12	Corpus Christi	June 22
Good Friday	April 21	Advent Sunday	Dec. 3
Easter Sunday	April 23	Christmas	Dec. 25
Ascension Day	June 1		

ECLIPSES IN 1905.

In the year 1905 there will be four eclipses, two of the Sun, and two of the Moon, as follows:

I—Partial eclipse of the Moon, February 19, not visible at these Islands.

II—Annular eclipse of the Sun, March 5, not visible at these Islands.

III—Partial eclipse of the Moon August 14; full moon rising with disappearing eclipse.

IV—Total eclipse of the Sun August 30, not visible in the Pacific.

FIRST QUARTER, 1905.

JANUARY.					FEBRUARY.					MARCH.				
D.	H.M.				D.	H.M.				D.	H.M.			
5	New Moon....	7.47.	3 a.m.		4	New Moon....	0 35. 9 a.m.			5	New Moon....	6 49. 4 p.m.		
13	First Quar....	9.40.	9 a.m.		13	First Quar....	5.50. 1 a.m.			13	First Quar....	9 29. 5 p.m.		
20	Full Moon....	8.44.	1 p.m.		19	Full Moon....	8.22. 0 a.m.			20	Full Moon....	5 35. 6 p.m.		
27	Last Quar....	1.49.	9 p.m.		25	Last Quar....	11.33. 7 p.m.			27	Last Quar....	11.05. 2 a.m.		
Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets...		Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets...		Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets...	
1	SUN....	6 38 15	30 3		1	Wed....	6 37 35	50 8		1	Wed....	6 20 26	04 7	
2	Mon....	6 38 45	30 9		2	Thurs..	6 36 95	51 4		2	Thurs..	6 19 36	05 1	
3	Tues....	6 38 75	31 6		3	Friday..	6 36 55	52 0		3	Friday..	6 18 56	05 5	
4	Wed....	6 39 05	32 5		4	Sat....	6 36 15	52 6		4	Sat....	6 17 76	05 9	
5	Thurs..	6 39 25	32 9		5	SUN....	6 35 65	53 2		5	SUN....	6 16 96	06 3	
6	Friday..	6 39 45	33 6		6	Mon....	6 35 25	53 8		6	Mon....	6 16 06	06 7	
7	Sat....	6 39 65	34 3		7	Tues....	6 34 75	54 4		7	Tues....	6 15 26	07 1	
8	SUN....	6 39 85	35 0		8	Wed....	6 34 25	54 9		8	Wed....	6 14 46	07 4	
9	Mon....	6 39 95	35 6		9	Thurs..	6 33 75	55 4		9	Thurs..	6 13 56	07 7	
10	Tues....	6 40 05	36 3		10	Friday..	6 33 25	56 0		10	Friday..	6 12 66	08 1	
11	Wed....	6 40 15	37 0		11	Sat....	6 32 65	56 5		11	Sat....	6 11 76	08 5	
12	Thurs..	6 40 25	37 7		12	SUN....	6 32 05	57 0		12	SUN....	6 10 96	08 8	
13	Friday..	6 40 35	38 4		13	Mon....	6 31 55	57 5		13	Mon....	6 10 06	09 1	
14	Sat....	6 40 45	39 0		14	Tues....	6 30 95	58 0		14	Tues....	6 09 16	09 4	
15	SUN....	6 40 45	39 7		15	Wed....	6 30 25	58 5		15	Wed....	6 08 26	09 7	
16	Mon....	6 40 45	40 4		16	Thurs..	6 29 65	59 0		16	Thurs..	6 07 36	10 1	
17	Tues....	6 40 45	41 1		17	Friday..	6 29 05	59 5		17	Friday..	6 06 46	10 4	
18	Wed....	6 40 35	41 7		18	Sat....	6 28 36	00 0		18	Sat....	6 05 46	10 7	
19	Thurs..	6 40 35	42 4		19	SUN....	6 27 76	00 4		19	SUN....	6 04 56	11 0	
20	Friday..	6 40 25	43 1		20	Mon....	6 27 06	00 9		20	Mon....	6 03 66	11 3	
21	Sat....	6 40 15	43 7		21	Tues....	6 26 36	01 4		21	Tues....	6 02 76	11 6	
22	SUN....	6 39 95	44 4		22	Wed....	6 25 66	01 9		22	Wed....	6 01 76	12 0	
23	Mon....	6 39 75	45 1		23	Thurs..	6 24 96	02 3		23	Thurs..	6 00 86	12 3	
24	Tues....	6 39 55	45 7		24	Friday..	6 24 16	02 7		24	Friday..	5 59 96	12 6	
25	Wed....	6 39 35	46 4		25	Sat....	6 23 46	03 1		25	Sat....	5 59 06	12 9	
26	Thurs..	6 39 15	47 1		26	SUN....	6 22 66	03 5		26	SUN....	5 58 16	13 2	
27	Friday..	6 38 95	47 7		27	Mon....	6 21 76	03 9		27	Mon....	5 57 26	13 5	
28	Sat....	6 38 75	48 3		28	Tues....	6 20 96	04 3		28	Tues....	5 56 26	13 8	
29	SUN....	6 38 45	48 9							29	Wed....	5 55 36	14 0	
30	Mon....	6 38 05	49 5							30	Thurs..	5 54 46	14 3	
31	Tues....	6 37 75	50 2							31	Friday..	5 53 56	14 6	

THE PEARLS that were obtained at these islands by the early traders are thus described by Vancouver: "Those seen were but few, and consisted of three sorts; the white, yellow and lead color. The white were very indifferent, being small, irregular in shape, and possessing little beauty; the yellow and those of a lead color were better formed, and, in point of appearance, of superior quality."

SECOND QUARTER, 1905.

APRIL.					MAY.					JUNE.				
D.	H.M.				D.	H.M.				D.	H.M.			
4	New Moon	...0.53.	4 p.m.		4	New Moon	...5 19.	8 a.m.		2	New Moon	...7 26.	6 p.m.	
12	First Quar.	...11.11.	4 a.m.		11	First Quar.	...8.16.	4 p.m.		10	First Quar.	...2.34.	7 a.m.	
19	Full Moon	...3.07.	9 a.m.		18	Full Moon	...11.06.	4 a.m.		16	Full Moon	...7.21.	5 p.m.	
26	Last Quar.	...2.48.	6 a.m.		25	Last Quar.	...4 19.	7 p.m.		24	Last Quar.	...9.15.	8 a.m.	
Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets...		Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets...		Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets...	
1	Sat....	5 52	6 6	15 1	1	Mon....	5 28	7 6	25 3	1	Thurs...	5 17	2 6	38 3
2	SUN....	5 51	7 6	15 4	2	Tues....	5 28	1 6	27 7	2	Friday..	5 17	1 6	38 7
3	Mon....	5 50	8 6	15 7	3	Wed....	5 27	5 6	26 1	3	Sat....	5 17	1 6	39 1
4	Tues...	5 49	9 6	16 0	4	Thurs...	5 26	8 6	26 5	4	SUN....	5 17	0 6	39 4
5	Wed....	5 49	0 6	16 3	5	Friday..	5 26	3 6	26 9	5	Mon....	5 17	0 6	39 8
6	Thurs...	5 48	1 6	16 6	6	Sat....	5 25	7 6	27 3	6	Tues...	5 16	9 6	40 2
7	Friday..	5 47	3 6	16 9	7	SUN....	5 25	2 6	27 7	7	Wed....	5 16	9 6	40 6
8	Sat....	5 46	4 6	17 2	8	Mon....	5 24	6 6	28 1	8	Thurs...	5 17	0 6	40 9
9	SUN....	5 45	5 6	17 6	9	Tues...	5 24	2 6	28 5	9	Friday..	5 17	0 6	41 3
10	Mon....	5 44	6 6	17 9	10	Wed....	5 23	7 6	29 0	10	Sat....	5 17	0 6	41 6
11	Tues...	5 43	8 6	18 2	11	Thurs...	5 23	2 6	29 4	11	SUN....	5 17	1 6	42 0
12	Wed....	5 43	0 6	18 5	12	Friday..	5 22	8 6	29 8	12	Mon....	5 17	2 6	42 3
13	Thurs...	5 42	2 6	18 8	13	Sat....	5 22	4 6	30 3	13	Tues...	5 17	3 6	42 6
14	Friday..	5 41	3 6	19 1	14	SUN....	5 21	9 6	30 7	14	Wed....	5 17	4 6	42 8
15	Sat....	5 40	5 6	19 4	15	Mon....	5 21	5 6	31 1	15	Thurs...	5 17	6 6	43 1
16	SUN....	5 39	7 6	19 8	16	Tues...	5 21	1 6	31 5	16	Friday..	5 17	8 6	43 4
17	Mon....	5 38	9 6	20 1	17	Wed....	5 20	7 6	31 9	17	Sat....	5 17	9 6	43 7
18	Tues...	5 38	1 6	20 5	18	Thurs...	5 20	4 6	32 4	18	SUN....	5 18	1 6	43 9
19	Wed....	5 37	3 6	20 8	19	Friday..	5 20	1 6	32 8	19	Mon....	5 18	3 6	44 2
20	Thurs...	5 36	4 6	21 2	20	Sat....	5 19	8 6	33 2	20	Tues...	5 18	4 6	44 4
21	Friday..	5 35	5 6	21 6	21	SUN....	5 19	5 6	33 6	21	Wed....	5 18	6 6	44 6
22	Sat....	5 34	7 6	21 9	22	Mon....	5 19	2 6	34 0	22	Thurs...	5 18	8 6	44 8
23	SUN....	5 34	0 6	22 3	23	Tues...	5 18	9 6	34 5	23	Friday..	5 19	0 6	45 0
24	Mon....	5 33	4 6	22 7	24	Wed....	5 18	6 6	35 0	24	Sat....	5 19	3 6	45 1
25	Tues...	5 32	7 6	23 0	25	Thurs...	5 18	3 6	35 4	25	SUN....	5 19	6 6	45 2
26	Wed....	5 32	0 6	23 4	26	Friday..	5 18	1 6	35 9	26	Mon....	5 19	9 6	45 4
27	Thurs...	5 31	3 6	23 8	27	Sat....	5 17	9 6	36 2	27	Tues...	5 20	2 6	45 5
28	Friday..	5 30	6 6	24 2	28	SUN....	5 17	7 6	36 7	28	Wed....	5 20	5 6	45 6
29	Sat....	5 29	9 6	24 5	29	Mon....	5 17	5 6	37 1	29	Thurs...	5 20	8 6	45 7
30	SUN....	5 29	3 6	24 9	30	Tues...	5 17	4 6	37 5	30	Friday..	5 21	1 6	45 8
					31	Wed....	5 17	3 6	37 9					

THE TOWN of Kailua, Kona, Hawaii, in 1840, under Governor Kuakini, was said to contain "the best built stone house in the islands, his residence, a cotton factory constructed of stone, a large stone church and a school house, as also one store where sandal-wood, kukui nuts, beans, corn and palm-leaf hats were exchanged for goods."

THIRD QUARTER, 1905.

JULY.					AUGUST.					SEPTEMBER.				
D.		H.M.			D.		H.M.			D.		H.M.		
2	New Moon	7 19	9 a.m.		7	First Quar	11 46	5 a.m.		5	First Quar	5 38	8 p.m.	
9	First Quar	7 16	3 a.m.		14	Full Moon	5 01	4 p.m.		13	Full Moon	7 40	0 a.m.	
16	Full Moon	5 01	7 a.m.		22	Last Quar	7 39	8 p.m.		21	Last Quar	11 43	5 a.m.	
24	Last Quar	2 38	6 a.m.		30	New Moon	2 43	4 a.m.		28	New Moon	10 29	5 a.m.	
31	New Moon	5 32	7 p.m.											
Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.		Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.		Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.	
1	Sat.	5 21	4 6	45 9	1	Tues.	5 33	3 6	38 4	1	Friday.	5 43	5 6	15 5
2	SUN.	5 21	8 6	45 9	2	Wed.	5 33	7 6	37 9	2	Sat.	5 43	7 6	14 6
3	Mon.	5 22	1 6	45 9	3	Thurs.	5 34	1 6	37 9	3	SUN.	5 44	0 6	13 7
4	Tues.	5 22	5 6	45 9	4	Friday.	5 34	5 6	36 8	4	Mon.	5 44	2 6	12 8
5	Wed.	5 22	8 6	45 8	5	Sat.	5 34	9 6	36 2	5	Tues.	5 44	5 6	11 9
6	Thurs.	5 23	2 6	45 8	6	SUN.	5 35	3 6	35 6	6	Wed.	5 44	8 6	11 0
7	Friday.	5 23	6 6	45 8	7	Mon.	5 35	6 6	35 0	7	Thurs.	5 45	0 6	10 0
8	Sat.	5 23	9 6	45 7	8	Tues.	5 36	0 6	34 4	8	Friday.	5 45	3 6	09 1
9	SUN.	5 24	3 6	45 6	9	Wed.	5 36	4 6	33 7	9	Sat.	5 45	6 6	08 1
10	Mon.	5 24	6 6	45 5	10	Thurs.	5 36	8 6	33 1	10	SUN.	5 45	8 6	07 1
11	Tues.	5 25	0 6	45 4	11	Friday.	5 37	1 6	32 3	11	Mon.	5 46	1 6	06 2
12	Wed.	5 25	4 6	45 3	12	Sat.	5 37	4 6	31 7	12	Tues.	5 46	4 6	05 2
13	Thurs.	5 25	8 6	45 1	13	SUN.	5 37	7 6	31 0	13	Wed.	5 46	6 6	04 2
14	Friday.	5 26	2 6	44 9	14	Mon.	5 38	1 6	30 4	14	Thurs.	5 46	8 6	03 3
15	Sat.	5 26	6 6	44 7	15	Tues.	5 38	4 6	29 6	15	Friday.	5 47	1 6	02 3
16	SUN.	5 27	0 6	44 5	16	Wed.	5 38	7 6	28 8	16	Sat.	5 47	3 6	01 4
17	Mon.	5 27	4 6	44 3	17	Thurs.	5 39	1 6	28 1	17	SUN.	5 47	6 6	00 5
18	Tues.	5 27	8 6	44 0	18	Friday.	5 39	4 6	27 3	18	Mon.	5 47	8 6	59 5
19	Wed.	5 28	2 6	43 7	19	Sat.	5 39	7 6	26 5	19	Tues.	5 48	1 6	58 5
20	Thurs.	5 28	6 6	43 4	20	SUN.	5 40	0 6	25 7	20	Wed.	5 48	3 6	57 6
21	Friday.	5 29	0 6	43 1	21	Mon.	5 40	3 6	24 9	21	Thurs.	5 48	6 6	56 6
22	Sat.	5 29	4 6	42 8	22	Tues.	5 40	6 6	24 1	22	Friday.	5 48	8 6	55 7
23	SUN.	5 29	8 6	42 4	23	Wed.	5 40	9 6	23 3	23	Sat.	5 49	1 6	54 7
24	Mon.	5 30	2 6	42 1	24	Thurs.	5 41	2 6	22 5	24	SUN.	5 49	3 6	53 8
25	Tues.	5 30	6 6	41 7	25	Friday.	5 41	5 6	21 6	25	Mon.	5 49	6 6	52 8
26	Wed.	5 31	0 6	41 3	26	Sat.	5 41	8 6	20 8	26	Tues.	5 49	9 6	51 9
27	Thurs.	5 31	4 6	40 8	27	SUN.	5 42	1 6	19 9	27	Wed.	5 50	2 6	50 9
28	Friday.	5 31	8 6	40 4	28	Mon.	5 42	4 6	19 0	28	Thurs.	5 50	5 6	50 0
29	Sat.	5 32	2 6	39 9	29	Tues.	5 42	7 6	18 2	29	Friday.	5 50	8 6	49 1
30	SUN.	5 32	6 6	39 4	30	Wed.	5 43	0 6	17 3	30	Sat.	5 51	1 6	48 1
31	Mon.	5 33	0 6	38 9	31	Thurs.	5 43	2 6	16 4					

IN THE VISIT to these islands of the earliest fur-traders of the Northwest, for refreshments, salt was found to be an article obtainable at various points, and soon became a prime object of call for the curing of skins procured on the Coast, and doubtless was the first article of Hawaiian exports. As early as 1802 it is of record as being "found scarcer and dearer than had been expected."

FOURTH QUARTER, 1905.

OCTOBER.					NOVEMBER.					DECEMBER.				
D.	H M.				D.	H M.				D.	H M.			
5	First Quar....	2 24.2	a.m.		3	First Quar....	3 09.1	p.m.		3	First Quar....	8 07.6	a.m.	
13	Full Moon....	0 32.7	a.m.		11	Full Moon....	6 41.3	p.m.		11	Full Moon....	0 55.7	a.m.	
21	Last Quar....	2 20.6	a.m.		19	Last Quar....	3 03.9	p.m.		19	Last Quar....	1 38.6	a.m.	
27	New Moon....	8 27.8	p.m.		26	New Moon....	5 17.1	a.m.		26	New Moon....	5 33.6	p.m.	
Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets..		Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets..		Day of Mo..	Day of Wk.	Sun Rises..	Sun Sets..	
1	SUN....	5 51 35	47 2		1	Wed....	6 03 45	23 7		1	Friday..	6 21 75	17 3	
2	Mon....	5 51 65	46 3		2	Thurs..	6 03 95	23 2		2	Sat....	6 22 35	17 4	
3	Tues....	5 51 95	45 4		3	Friday..	6 04 55	22 7		3	SUN....	6 23 05	17 6	
4	Wed....	5 52 25	44 5		4	Sat....	6 05 05	22 2		4	Mon....	6 23 65	17 7	
5	Thurs..	5 52 55	43 6		5	SUN....	6 05 55	21 8		5	Tues....	6 24 35	17 9	
6	Friday..	5 52 85	42 7		6	Mon....	6 06 15	21 3		6	Wed....	6 24 95	18 1	
7	Sat....	5 53 25	41 8		7	Tues....	6 06 65	20 9		7	Thurs..	6 25 65	18 4	
8	SUN....	5 53 55	40 9		8	Wed....	6 07 25	20 5		8	Friday..	6 26 25	18 7	
9	Mon....	5 53 85	40 1		9	Thurs..	6 07 85	20 1		9	Sat....	6 26 85	19 0	
10	Tues....	5 54 25	39 2		10	Friday..	6 08 45	19 8		10	SUN....	6 27 45	19 3	
11	Wed....	5 54 65	38 4		11	Sat....	6 09 05	19 4		11	Mon....	6 28 05	19 6	
12	Thurs..	5 54 95	37 6		12	SUN....	6 09 65	19 1		12	Tues....	6 28 65	20 0	
13	Friday..	5 55 25	36 7		13	Mon....	6 10 25	18 8		13	Wed....	6 29 25	20 4	
14	Sat....	5 55 65	35 9		14	Tues....	6 10 85	18 5		14	Thurs..	6 29 85	20 7	
15	SUN....	5 55 95	35 1		15	Wed....	6 11 55	18 2		15	Friday..	6 30 45	21 1	
16	Mon....	5 56 35	34 3		16	Thurs..	6 12 15	18 0		16	Sat....	6 30 95	21 5	
17	Tues....	5 56 75	33 6		17	Friday..	6 12 75	17 8		17	SUN....	6 31 55	21 9	
18	Wed....	5 57 05	32 8		18	Sat....	6 13 35	17 5		18	Mon....	6 32 05	22 4	
19	Thurs..	5 57 45	32 0		19	SUN....	6 13 95	17 3		19	Tues....	6 32 65	22 9	
20	Friday..	5 57 85	31 3		20	Mon....	6 14 55	17 2		20	Wed....	6 33 15	23 4	
21	Sat....	5 58 25	30 5		21	Tues....	6 15 15	17 1		21	Thurs..	6 33 65	23 9	
22	SUN....	5 58 75	29 8		22	Wed....	6 15 85	17 1		22	Friday..	6 34 15	24 4	
23	Mon....	5 59 15	29 1		23	Thurs..	6 16 55	17 0		23	Sat....	6 34 65	24 9	
24	Tues....	5 59 65	28 5		24	Friday..	6 17 15	17 0		24	SUN....	6 35 15	25 5	
25	Wed....	6 00 05	27 8		25	Sat....	6 17 75	17 0		25	Mon....	6 35 65	26 0	
26	Thurs..	6 00 55	27 2		26	SUN....	6 18 45	17 0		26	Tues....	6 36 05	26 6	
27	Friday..	6 01 05	26 8		27	Mon....	6 19 15	17 0		27	Wed....	6 36 45	27 1	
28	Sat....	6 01 55	26 0		28	Tues....	6 19 75	17 0		28	Thurs..	6 36 85	27 7	
29	SUN....	6 02 05	25 4		29	Wed....	6 20 45	17 1		29	Friday..	6 37 15	28 3	
30	Mon....	6 02 45	24 8		30	Thurs..	6 21 15	17 2		30	Sat....	6 37 45	28 9	
31	Tues....	6 02 95	24 3							31	SUN....	6 37 75	29 5	

THE OLD three-story coral building on the water front, erected in 1848 for the Custom and Bonded Warehouse, and which was used as such till the present one on the Esplanade was constructed, in 1860, has been torn down this past year. Thus one after another the old familiar landmarks have to give way to the march of time, that Honolulu may keep pace with the spirit of progress.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1¼	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N.W. of Oahu.....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena. 58	

HONOLULU TO

Lae o ka Laau, S.W. Pt. Molakai	35	Kawaihae, Hawaii.....	144
Kalaupapa, Leper Settlement.....	52	Kealakekua, " (direct).....	157
West Point of Lanai.....	50	" " (via Kawaihae).....	186
Lahaina, Maui.....	72	S. W. pt. Hawaii " ".....	233
Kahului "	90	Punaluu, "	250
Hana, "	128	Hilo, " (direct).....	192
Maalaea, "	86	" " (windward).....	206
Makena, "	96	" " (via Kawaihae).....	230
Mahukona, Hawaii	134		

HONOLULU TO

Nawiliwili, Kauai	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealakekua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaalualu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S.W. Point of Molokai	30	Hawaii and Maui.....	26
Molokai and Lanai.....	7	Kauai and Oahu.....	63
Molokai and Maui.....	8	Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.....	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N.E. Cape.....	4890
Samoa	2290	Victoria, B. C.....	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

Revised for the Annual by C. J. Lyons, in accordance with latest Government Survey measurements. The outer column of figures indicates the distance between points.

ISLAND OF OAHU.**HONOLULU POST-OFFICE TO**

Miles.		Miles. Inter.	
Bishop's corner (Waikiki).....	3.2	Kahana	26.4 4.5
Waikiki Villa	3.6	Punaluu	28.4 2.0
Race Course	4.5	Hauula	31.4 3.0
Diamond Head	5.9	Laie	34.4 3.0
Kaalawai	6.0	Kahuku Mill	37.2 2.8
Miles. Inter.		Kahuku Ranch	
Thomas Square	1.0		40.0 2.8
Pawaa corners	2.0	1.0 Moanalua	3.4
Kamoiiliili	3.3	1.3 Kalauao	7.4 4.0
Telegraph Hill	5.0	1.7 Ewa Church	10.2 2.8
Waialae	6.2	1.2 Kipapa	13.6 3.4
Niu	8.8	2.6 Kaukonahua	20.0 6.4
Koko Head	11.8	3.0 Leilehua	20.0
Makapuu	14.8	3.0 Waialua	28.0 8.0
Waimanalo	20.8	6.0 Waimea	32.4 4.4
Waimanalo, via Pali.....	12.0	Kahuku Ranch	39.4 7.0
		Ewa Church	10.2
Nuuanu Bridge	1.1	Waipio (Brown's)	11.2 1.0
Mausoleum	1.5	0.4 Hoaeae (Robinson's) ...	13.5 2.3
Electric Reservoir	2.7	1.2 Barber's Point, L. H.	21.5 8.0
Luakaha	4.3	1.6 Nanakuli	23.5 2.0
*Pali	6.2	1.9 Waianae Plantation	29.9 6.4
Kaneohe (new road).....	11.9	5.7 Kahanahaiki	36.9 7.0
Waiahole	18.9	7.0 Kaena Point	42.0 5.1
Kualoa	21.9	3.0 Waialua to Kaena Pt....	12.0

OAHU RAILWAY: DISTANCES FROM HONOLULU DEPOT TO

Miles.		Miles.	
Moanalua	2.76	Waipio	13.58
Puuloa	6.23	Waikale	14.57
Halawa	8.14	Hoaeae	15.23
Aiea	9.37	Ewa Plantation Mill.....	18.25
Kalauao	10.20	Waianae Station	33.30
Waiau	10.93	Kaena Point	44.50
Pearl City	11.76	Waialua Station	55.80
Waiawa	12.52	Kahuku Plantation	69.50

ISLAND OF KAUAI.**NAWILIWILI TO**

Miles. Inter.		Miles. Inter.	
Koloa	11.0	Waialua River	7.7 4.4
Lawai	13.8	2.8 Kealia	11.9 4.2
Hanapepe	20.0	6.2 Anahola	15.7 3.8
Waimea	27.1	7.1 Kilauea	23.6 7.9
Waiawa	31.5	4.4 Kalihiwai	26.6 3.0
Nuololo	44.8	13.3 Hanalei	31.8 5.2
		Wainiha	34.8 3.0
Hanamaulu	3.3	Nuololo (no road).....	47.0 12.2

*Pali distance is by the old Road, new measurements are not yet available.

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	3.5		Paia	5.5	
Paia	5.5	2.0	Makawao Court House..	10.5	5.0
Hamakuapoko Mill	8.6	3.1	Olinda	16.7	6.2
Haiku	10.2	1.6	Haleakala, edge Crater..	22.5	5.8
Halehaku	16.0	5.8	Haleakala Summit	24.7	2.2
Huelo	19.5	3.5			
Keanae	27.2	7.7	Maalaea	9.9	
Nahiku	32.7	5.5	End of Mountain Road..	15.4	5.5
Ulaino	36.3	3.6	Olowalu	19.6	4.2
Hana	42.3	6.0	Lahaina Court House..	25.5	5.9
Hamoia	45.3	3.0			
Wailua	48.9	3.6	Waiehu	3.3	
Kipahulu Mill	52.2	3.3	Waihee	4.8	1.5
Mokulau	56.6	4.4	Kahakuloa	10.1	5.3
Nuu	62.1	5.5	Honokohau	14.5	4.4
			Honolua	17.4	2.9
Wailuku	3.1		Napili	20.0	2.6
Waikapu	5.5	2.4	Honokawai	23.8	3.8
Maalaea	9.9	4.4	Lahaina Court House..	29.3	5.5
Kalepolepo	14.6	4.7			
Mana	22.3	7.7	MAKENA TO		
Ulupalakua	25.6	3.3	Ulupalakua	3.3	
Kanaio	28.9	3.3	Kamaole	7.1	3.8
Pico's	35.5	6.6	Waiakoa	12.1	5.0
Nuu	41.0	5.5	Foot of Puu Pane.....	15.8	3.7
			Makawao Court House..	21.8	6.0

ISLAND OF HAWAII.

WAIMEA COURT HOUSE TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary	4.5		Hilo, via Humuula St'n..	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep St'n....	14.0	
Mana	7.7		Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Humuula Sheep Station,			Kohala Court House....	22.0	5.0
via Laumaia	47.5	11.0	Mahukona	22.0	
Auwaiakewa	12.5		Puako	12.0	
Humuula Sheep Station..	29.0	16.5			

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.....	4.00	Union Mill	2.25
Niulii Mill	2.80	Union Mill R. R. Station.....	3.25
Dr. Wight's Store, Halawa.....	1.15	Honomakau	2.55
Halawa Mill	1.15	Hind's, Hawaii	3.25
Hapuu Landing	2.56	Hawi R. R. Station.....	4.25
Kohala Mill	.50	Honoipu	7.20
Kohala Mill Landing	1.50	Mahukona	10.50
Native Church	1.00	Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0		Dr. Wight's Corner.....	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niulii Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch...	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	
Kohala Mill Corner.....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4		Mana, Parker's	19.5
Puuiki, Spencer's	7.7	3.3	Keawewai	6.0
Waiaka, Catholic Church	9.5	1.8	Puuhue Ranch	10.0
Puopelu, Parker's	10.8	1.3	Kohala Court House	15.0
Waimea Court House.....	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA.—KEALAKEKUA TO

Keauhou	6.0		Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopuloa	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau	24.8	3.2
Ke Au a Lono bound'y.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0		Honaupo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

(By new road.)

	Miles.		Miles.
Keauu, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiki (Rycroft's)	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau	56.0
Kamaili	26.0	Sand Hills, Naawale, old road..	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.8
Edge of Woods	4.1	Mason's	17.5
Cocoanut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furieux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolii Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road.....	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Hakalau, east edge gulch.....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kaala Church	6.8	Stream at Kukuihaele.....	26.0
Kukaiau Gulch	8.0	Edge Waipio	26.5
Horner's	8.5	Bottom Waipio	27.0
Catholic Church, Kainehe.....	9.0	Waimanu (approximate)	32.5
Notley's. Paauiio	10.5	Kukuihaele to Waimea (approximate)	10.5
Kaumoalii Bridge	12.5	Gov't Road to Hamakua Mill....	1.5
Bottom Kalopa Gulch	14.0	Gov't Road to Paauihau Mill....	1.0
Wm. Horner's, Paauihau	15.2	Gov't Road to Pacific Sugar Mill,	
Paauihau Church	16.3	Kukuihaele	0.7
Holmes' Store, Honokaa.....	18.0		
Honokaia Church	20.5		

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluahaha	13.5		

TABLE OF ELEVATIONS OF PRINCIPAL LOCALITIES THROUGHOUT THE ISLANDS.

(From Government Survey Records; Measurements from mean Sea Level.)

OAHU PEAKS.

	Feet.		Feet.
Kaala, Waianae Range....	4030	Telegraph Hill or Kaimuki....	291
Palikea, Waianae Range.....	3111	Koko Head, higher crater.....	1205
Konahuanui Peak, S. of Pali..	3105	Koko Head, lower crater.....	644
Lanihuli Peak, N. of Pali.....	2781	Makapuu, east point of island..	665
Tantalus or Puu Ohia.....	2013	Mokapu, crater off Kaneohe....	681
Awawaloa (Olympus) Manoa..	2447	Olomana, sharp peak, Kailua..	1645
Round Top or Ualakaa.....	1049	Maelieli, sharp peak, Heeia....	715
Punchbowl Hill or Puowaina..	493	Ohulehule, sh'p peak, Hikipuu..	2263
Diamond Head or Leahi.....	761	Koolau Range, above Wahiawa..	2381

LOCALITIES NEAR HONOLULU.

Nuuanu Road, cor School St..	40	Nuuanu Road, Queen Emma's	358
" " second bridge..	77	" " cor, above Elec-	
" " cor. Judd St..	137	tric Light Works.....	429
" " Cemetery gate..	162	Nuuanu Road, large bridge...	735
" " Mau's I'm gate..	206	" " Luakaha gate..	848
" " Schaefer's gate	238	" " Pali, old station	1214

MOLOKAI ETC.

Kamakou Peak	4958	Kaolewa Pali, overlooking	
Oloku Peak	4600	Leper Settlement	2100
Kaunuuohua	4535	Meyer's, Kalae	1485
Kalapamoa	4004	Mauna Loa, near Kaunakakai..	1382
Puu Kolekole	3951	Kualapuu Hill	1018
Kaulahuki	3749	Kahoolawe (Moaula Hill).....	1472
Kaapahu Station	3563	Molokini	160
		Lanai	3400

HAWAII.		Feet.	Feet.
Mauna Kea	13,825	Hiilawe Falls	1700
Mauna Loa	13,675	Parker's, Mana	3505
Hualalai	8275	Honokaa Store	1100
Kohala Mountains	5489	Lower edge forest, Hamakua..	1700
Kilauea Vol. House, by level- ing	3971	Lower edge forest, Hilo.....	1200
Kulani, near Kilauea	5574	Laupahoehoe Pali	385
Kalaiheia	6660	Maulua Pali	406
Aahuwela, near Lahaina	7747	Kauku Hill	1964
Hitchcock's, Puakala	6325	Puu Alala	762
Ahumo'a	7034	Halai Hill	347
Waimea Court House.....	2669	Puu o Nale, Kohala.....	1797
Waipio Pali, in Mountain....	3000	B. D. Bond's, Kohala.....	521
Waipio Pali, on S. (Road)...	900	Anglican Church, Kainaliu....	1578
Waipio, Pali, on N. side.....	1394	Puu Enuhe, Kau	2327
Waimanu, at sea	1600	Puu Hoomaha, Kau	6636
Waimanu in mountain	4000	Puu ka Pele, Kau.....	5768
Waiau Lake, Mauna Kea	1600	Kaluamakani, Hamakua	7584
Poliahu, Mauna Kea	13,646	Kapoho Hill, Puna	432
Kalaieha, N. Hilo	6738	Kaliu Hill, Puna	1065
		Olaa Trig. Station.....	622

MAUI.

Haleakala (Red Hill).....	10,032	Puu Kapuai, Hamakua.....	1150
Mt. Kukui, West Maui.....	5790	Puu o Umi, Haiku.....	620
Piihola, Makawao	2256	Puu Pane, Kula	2568
Puu Olai, (Miller's Hill).....	355	Lahainaluna Seminary	600
Puu Io, near Ulupalakua.....	2841	Kauiki, Hana	392
Ulupalakua, about	1800	"Sunnyside," Makawao	930
Olinda, Makawao	4043	Paia Foreign Church, about..	850
Puu Pane, Kahikinui.....	3988	Eka, crater in Waihee.....	4500
Puu Nianiau, Makawao.....	6850	Keakaamanu, Hana	1250

KAUAI

Haupu	2030	Mt. Waialeale, central peak...	5250
Kilohana, about	1100	Namolokama	4200

NOTE.—A large number of approximate elevations of stations where rain records are kept may be found in the Rain Tables in this Annual.

Area, Elevation and Population of the Hawaiian Islands.

(As revised by recent Government Survey Records.)

Islands.	Area in Statute Square Miles.	Acres.	Height in Feet.	Population in 1900.
Hawaii	4,015	2,570,000	13,825	46,843
Maui	728	466,000	10,032	24,797
Oahu	598	384,000	4,030	58,504
Kauai	547	348,000	5,250	20,562
Molokai	261	167,000	4,958	2,504
Lanai	139	86,000	3,400	619
Niihau	97	62,000	1,300	172
Kahoolawe	69	44,000	1,472	.....

Total area of Hawaiian Islands, 6,449 miles.

The outlying islets on the N. W. may amount to 6 square miles.

KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.
 Circumference, 41,500 feet, or 7.85 miles.
 Extreme Width, 10,300 feet, or 1.95 miles.
 Extreme Length, 15,500 feet, or 2.93 miles.
 Elevation, Volcano House, 4,000 feet.

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.
 Circumference, 50,000 feet, or 9.47 miles.
 Length, 19,500 feet, or 3.7 miles.
 Width, 9,200 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

HALEAKALA, MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.
 Circumference, 105,600 feet, or 20 miles.
 Extreme Length, 39,500 feet, or 7.48 miles.
 Extreme Width, 12,500 feet, or 2.37 miles.
 Elevation to summit, 10,032 feet.
 Elevation of principal cones in crater, 8,032 and 1,572 feet.
 Elevation of cave in floor of crater, 7,380 feet.

IAO VALLEY, MAUI.

Length (from Wailuku), about 5 miles.
 Width of Valley, 2 miles.
 Depth, near head, 4,000 feet.
 Elevation of Puu Kukui above head of Valley, 5,700 feet.
 Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

Standard and Local Time.

The Standard Time of the Hawaiian Islands is that of Longitude 157° 30' W., 10 h. 30 m. slower than Greenwich Time. The time of sunrise and sunset given in the tables is of course local time; to correct this to standard time, add or subtract a correction corresponding with the differences between 157° 30' and the longitude of the station.

The corrections would be for the following stations:

Niihau	+10:8 m	Wailuku, Maui	— 4:0 m
Mana, Kauai	+ 9:0 m	Haiku, Maui	— 4:8 m
Koloa, Kauai	+ 7:9 m	Hana, Maui	— 6:0 m
Kilauea, Kauai	+ 7:3 m	Kailua, Hawaii	— 6:2 m
Waialua, Oahu	+ 2:5 m	Kohala, Hawaii	— 7:0 m
Kahuku, Oahu	+ 2:0 m	Kukuihaele, Hawaii	— 8:0 m
Honolulu, Oahu	+ 1:5 m	Punaluu, Hawaii	— 8:0 m
Kalae, Molokai	— 2:0 m	Ookala, Hawaii	— 9:0 m
Lanai	— 2:5 m	Hilo, Hawaii	— 9:8 m
Lahaina, Maui	— 3:0 m		

LATEST CENSUS—HAWAIIAN ISLANDS.

(From Census Bulletin, Washington D. C., 1900.)

Total Population by Districts and Islands—Comparative 1900 & 1896.

HAWAII.		1900	1896	OAHU.		1900	1896
Hilo	19,785	12,878	Honolulu	39,306	29,920		
Puna	5,128	1,748	Ewa	9,689	3,067		
Kau	3,854	2,908	Waianae	1,008	1,281		
North Kona	3,819	3,061	Waialua	3,285	1,349		
South Kona	2,372	2,327	Koolauloa	2,372	1,835		
North Kohala	4,366	4,125	Koolaupoko	2,844	2,753		
South Kohala	600	558					
Hamakua	6,919	5,680			58,504	40,205	
		46,843	33,285	KAUAI.			
				Waimea	5,714	4,431	
				Niihau	172	164	
MAUI.				Koloa	4,564	1,835	
Lahaina	4,332	2,398	Kawaihau	3,220	2,762		
Wailuku	7,953	6,072	Hanalei	2,630	2,775		
Hana	5,276	3,792	Lihue	4,434	3,425		
Makawao	7,236	5,464					
		24,797	17,726		20,734	15,392	
Molokai and Lanai..	3,123	2,412	Total whole group.	154,001	109,020		

Comparative Table of Nationality of Population of Hawaiian Islands at Various Census Periods Since 1872.

NATIONALITY.	1872	1878	1884	1890	1896	1900
Natives	49,944	44,088	40,014	34,436	31,019	29,787
Part Hawaiians	1,487	3,420	4,218	6,186	8,485	7,848
Chinese	1,938	5,916	17,937	15,301	19,382	25,762
Americans	889	1,276	2,066	1,928	2,266	
Hawaiian - born Foreigners	849	947	2,040	7,495	13,733	7,283
British	619	883	1,282	1,344	1,538	1,730
Portuguese	395	436	9,377	8,602	8,232	15,675
German	224	272	1,600	1,434	912	1,154
French	88	81	192	70	75	.....
Japanese .....	.....	.....	116	12,360	22,329	61,115
Norwegian .....	.....	.....	362	227	216	410
Other foreigners	364	666	416	419	424	2,584
Polynesian .....	.....	.....	965	588	409	653
Total	56,897	57,985	80,578	89,990	109,020	154,001

Population of Honolulu at Various Census Periods.

1884	20,487	1896	29,920
1890	22,907	1900	39,306

Foreign Born Population of Hawaii, 1900, Distributed According to Country of Births:

As reported for the Annual by the Census Bureau, Washington, D. C.

Country.	Hawaii	Kauai and Niihau*	Lanai and Maui	Molokai	Oahu	Total
Atlantic Islands..	522	76	154	12	392	1,156
Austria	99	26	64	...	36	225
Canada (English) ..	79	11	9	2	238	339
China	4,202	3,265	2,988	77	11,209	21,741
England	142	35	49	6	507	739
Germany	135	334	71	11	603	1,154
Ireland	25	9	15	4	172	225
Japan	21,314	9,736	10,465	382	14,337	56,234
Norway and Denmark	31	50	44	6	139	270
Pacific Islands...	49	63	161	11	309	593
Portugal	2,217	727	1,032	6	2,530	6,512
Scotland	163	39	39	1	185	427
Spain	54	12	27	...	109	202
Sweden	40	4	9	2	85	140
Other Countries..	162	85	64	9	503	823
Total	29,234	14,472	15,191	529	31,354	90,780

*Niihau's share of Foreign born is 3; one each Scotch, Japanese, and one other.

Native Born Population of Hawaii, 1900.

The total native born population of Hawaii is 63,221, which is made up as follows:

Hawaiian	29,787	Negroes	178
Part Hawaiian	7,843	South Sea Islanders.....	60
Caucasians	7,283	Japanese	4,881
Portuguese	9,163	Chinese	4,021

Comparative Table of Population, Hawaiian Islands—1853-1900.

	Census 1853	Census 1860	Census 1866	Census 1872	Census 1878	Census 1884	Census 1890	Census 1896	Census 1900
Hawaii	24,450	21,481	19,808	16,001	17,034	24,991	26,754	33,285	46,843
Maui	17,574	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797
Oahu	19,126	21,275	19,799	20,671	20,236	28,068	31,194	40,205	58,504
Kauai	6,991	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562
Molokai	3,607	2,864	2,299	2,349	2,581	...	2,652	2,307	2,504
Lanai	600	646	394	348	214	2,614	174	105	619
Niihau	790	647	325	233	177	...	216	164	172
Kahoolawe ..	...	...	...	...	...	...	...	...	...
Total	73,138	69,800	62,959	56,897	57,985	80,578	89,990	109,020	154,001
All Foreigners	2,119	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366
Hawaiians ..	71,019	67,084	58,765	51,531	47,508	44,232	40,622	39,504	37,635

*Including Niihau.

SCHOOL STATISTICS, TERRITORY OF HAWAII.

From Reports of the Superintendent of Public Instruction.

NUMBER OF SCHOOLS, CLASS, ETC., 1904.

ISLANDS	PUBLIC SCHOOLS					PRIVATE SCHOOLS		
	No. of Schools	No. of Teachers	No. of Pupils— Boys	No. of Pupils— Girls	Total No. of Pupils	No. of Schools	No. of Teachers	No. of Pupils
Hawaii	57	132	2,616	2,122	4,738	10	36	1,078
Oahu	35	149	2,847	2,329	5,176	30	164	2,811
Maui and Lanai	31	66	1,283	1,130	2,413	12	37	780
Kauai and nai	31	43	1,056	830	1,886	5	10	163
Molokai	9	9	145	109	254	..	...	....
Totals ..	147	399	7,947	6,520	14,467	57	247	4,832

COMPARATIVE SCHOOL ATTENDANCE, 1902-04.

ISLANDS	No. Sch'ls 1904	IN SCHOOL, 1904			No. Sch'ls 1902	IN SCHOOL, 1902		
		Boys	Girls	Total		Boys	Girls	Total
Hawaii	67	3,139	2,677	5,816	67	2,778	2,346	5,124
Maui and Lanai	43	1,652	1,541	3,193	39	1,414	1,349	2,763
Molokai	9	145	109	254	10	179	108	287
Oahu	65	4,383	3,604	7,987	62	4,132	3,308	7,440
Kauai and Niihau	20	1,138	911	2,049	19	1,049	856	1,905
Totals	204	7,657	8,842	19,299	197	9,552	7,967	17,519

NATIONALITY OF PUPILS, 1902-04.

	1902	1904		1902	1904
Hawaiians	4,903	4,877	Chinese	1,385	1,650
Part Hawaiians	2,869	3,234	Japanese	1,993	2,920
Americans	812	877	Porto Ricans	596	556
English	240	205	Other Foreigners	151	189
Germans	337	321			
Portuguese	4,124	4,345	Total	17,519	19,299
Scandinavian	98	125			

The nationality of teachers in all schools of the Islands, 1904, was as follows: Hawaiian, 83; Part Hawaiian, 86; American, 314; British, 59; German, 15; Scandinavian, 14; Portuguese, 34; Chinese, 16; Japanese, 9; other Foreigners, 16; total, 646.

Quantity and Value of Domestic Produce Exported to the United States and Foreign Countries, 1904.

Products.	To United States.		To Other Countries.	
	Quantity.	Value.	Quantity.	Value.
Sugar, raw lbs.	736,491,992	\$24,359,385	.....	.....
Coffee, raw, lbs.	1,372,249	169,172	109,719	\$15,008
Rice, lbs.	39,911	1,610	350	19
Fruits .. .	.....	127,725	.....	899
Honey .. .	.....	14,346	.....	3,601
Hides, lbs.	970,381	74,331	.....	.....
Wool, raw, lbs.	169,938	22,406	.....	.....
Other .. .	.....	364,558	.....	19,489
		\$25,133,533		\$39,016

HAWAII'S COMMERCE WITH FOREIGN COUNTRIES.

Total Import and Export Values for 1903 and 1904.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.]

Countries.	Imports		Exports	
	1903	1904	1903	1904
Austria - Hungary.....	\$	\$ 177	\$	\$
Belgium.. .	65,791	304	.....	.....
British Columbia	63,881	34,663	2,509	2,019
Canada .. .	4,787	7,029	.....	1,075
Denmark.. .	136	.....	.....	.....
Great Britain	507,350	622,465	158	314
Germany .. .	387,470	347,359	500	558
France .. .	4,975	8,778	.....	18
Italy .. .	264	397	150	.....
Netherlands.. .	371	1,875	40	.....
Portugal .. .	15	843	.....	.....
Spain.. .	.....	2,127	.....	.....
Sweden and Norway....	492	114	.....	.....
West Indies — Cuba....	1,685	.....	.....	.....
Chile.. .	307,300	506,955	.....	.....
China .. .	3,492	4,149	1,768	610
East Indies	325,204	415,945	.....	.....
Hong Kong	158,805	189,101	4,801	8,310
Japan .. .	970,591	1,205,055	5,371	4,794
Australasia.. .	329,164	417,859	11,179	16,851
Oceania .. .	2,972	25,340	445	1,652
Philippines .. .	7,262	6,990	58	2,815
United States	10,943,061	11,683,393	26,201,175	25,133,533
All other	6	116	50	.....
Total .. .	\$14,085,074	\$15,481,034	\$26,228,204	\$25,172,549
Foreign mdse. to foreign ports.....	\$	\$ 5,540	\$	\$ 8,604
Foreign mdse. to U. S. ports.....	.....	41,694	.....	23,722
Grand total of exports.....	.....	\$26,275,438	\$25,204,875	.....

Import Values from U. S., Domestic and Foreign Mds., for Fiscal Year Ending June, 1904.

[Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.]

Articles	Domestic Mdse	Foreign Dutiable	Mdse Free
Agricultural Implements	\$ 26,010	\$	\$
Animals	93,146	.....	.....
Art Works	1,337	.....	.....
Books, Maps, etc.	104,373	47	.....
Bones, Horns, etc.	725	.....	.....
Brass, and Mnfrs of.....	19,085	.....	.....
Breadstuffs..	1,512,311	74	.....
Bricks	14,921	.....	.....
Brooms and Brushes.....	22,348	.....	.....
Candles	9,705	.....	.....
Carriages, Cars, etc., and parts of.....	74,412	.....	.....
Cement..	31,893	.....	.....
Chemicals, Drugs, Dyes, etc.	202,436	3,005	300
Clocks and Watches	26,276	.....	.....
Coal and Coke	36,487	.....	.....
Cocoa and Chocolate.....	10,163	.....	.....
Coffee, prepared	15,118	.....	1,657
Copper and manufactures of.....	48,925	.....	.....
Cotton and manufactures of.....	1,020,428	9,889	.....
Earthen, Stone and Chinaware.....	42,162	6,126	.....
Eggs	21,766	.....	.....
Fertilizers	644,491	.....	4,287
Fibers, Textile Grasses, manufactures of.	79,433	173	.....
Fish..	241,046	973	.....
Fruits and Nuts	173,492	493	.....
Glass and Glassware	77,809	2,538	.....
Gunpowder and other Explosives.....	74,273	.....	.....
Hair and manufactures of.....	123	.....	.....
Hay	178,149	.....	.....
India Rubber, mf'rs of, and Gutta Percha	80,948	.....	.....
Instruments, etc., for scientific purposes..	68,059	.....	.....
Iron and Steel and manufactures of.....	421,768	5,264	.....
Sheets and Plates	45,926	.....	.....
Machinery, Machines, parts of.....	505,018	.....	.....
Nails, Spikes, Pipes, etc., and all other	480,448	.....	.....
Jewelry and manufactures, Gold and Silver	182,852	2	.....
Lamps, Chandeliers, etc.	18,322	.....	.....
Lead and Manufactures of	16,910	.....	.....
Leather and manufactures of.....	336,460	.....	.....
Lime	85,400	.....	.....
Marble, Stone and Manufactures of.....	18,450	.....	.....
Matches..	20,173	.....	.....
Metals, manufactures of, N. O. S. ....	.....	1,519	.....
Musical Instruments	36,185	165	.....
Naval Stores	11,398	.....	.....
Oil Cloths	8,889	.....	.....

Import Values from U. S., Domestic and Foreign Mdse., for 1904.—Continued.

Articles.	Domestic Mdse.	Foreign Dutiable	Mdse. Free
Oils: Animal, Mineral, Crude.....	\$ 662,864	\$	\$
Refined, etc.	300,936	.....	870
Vegetable .. .	31,951	2,400	.....
Paints, Pigments and Colors.....	86,382	69	.....
Paper and manufactures of.....	168,988	133	.....
Perfumery, etc.	5,936	.....	.....
Plated Ware	61,999	.....	.....
Pipes and Smokers' Articles.....	.....	240	.....
Provisions, etc., Beef Products.....	79,851	.....	.....
Hog and other Meat Products....	249,461	223	.....
Dairy Products	217,850	515	.....
Rice and Rice Flour.....	143,142	.....	.....
Salt .. .	13,829	.....	.....
Seeds.. .	5,815	25	.....
Silk and manufactures of.....	27,843	4	.....
Soap; Toilet and other.....	103,178	66	.....
Spices .. .	.....	.....	215
Spirits, etc., Malt Liquors.....	111,974	864	.....
Spirits, distilled	138,147	7,939	.....
Wines.. .	218,058	9,810	.....
Straw and Palm Leaf, manufactures of	12,411	184	.....
Sugar, Molasses and Confectionery...	137,093	146	.....
Tea .. .	.....	.....	7,524
Tin, manufactures of.....	20,436	.....	704
Tobacco, manufactures of.....	522,945	5,671	.....
Toys .. .	15,249	181	.....
Trunks, Valises, etc.	17,504	.....	.....
Vegetables.. .	202,466	1,195	.....
Wood and manufactures of.....	.....	621	.....
Timber and unmanufactured	63,191	.....	.....
Lumber, Shingles, etc.	353,771	.....	.....
Doors, Sash, Blinds and all other..	67,356	.....	.....
Furniture, n. e. s.	105,566	.....	.....
Wool, manufactures of	183,584	3,541	.....
Zinc and manufactures of	1,729	.....	.....
All other articles	130,526	1,601	60
Total .. .	\$11,602,080	\$ 65,696	\$ 15,617

Exports, Territory of Hawaii, for Year Ending June 30, 1904.

Domestic produce to foreign countries.....	\$ 39,016
Domestic produce to United States.....	25,133,533
Foreign produce to United States.....	23,722
Foreign produce to foreign countries.....	8,604
Total .. .	\$25,204,875
Total specie exports	285,493
	\$25,490,368

Value Domestic Mdse. Shipments to the United States from Hawaii for Fiscal Years Ending June 30, 1903, and 1904.

(Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.)

Articles.	1903	1904
Animals	\$ 5,225	\$ 4,902
Art Works, paintings, etc.	10,348	13,480
Bones, hoofs, horns, etc.	633	.....
Books and printed matter	12,568	32,962
Brass and manufactures of	2,886	3,637
Carriages, etc., and parts of	5,718	3,575
Chemicals, drugs, etc.	6,623	8,057
Coffee	227,286	169,232
Copper and manufactures of	1,317	4,562
Cotton " " " "	12,107	10,292
Earthenware, etc.	837	807
Fibers and textiles	10,869	5,827
Fish	5,579	659
Fruits and nuts	74,342	127,725
Glass and glassware	8,522	6,174
Hides and skins	80,100	74,331
Honey	15,280	14,346
Instruments for science purposes	8,362	8,512
Iron, steel and manufactures of	38,989	18,635
Machinery and parts of	69,164	28,772
All other manufactures of iron, etc.	25,361	22,059
Jewelry	16,813	18,197
Leather and manufactures of	2,782	4,134
Marble and stone	798	680
Molasses	1	712
Musical instruments and parts	5,606	8,555
Oils	1,221	58
Paints, varnish, etc.	1,937	91
Paper and manufactures of	5,752	2,548
Provisions, etc.	8,088	5,054
Rice	10,218	1,610
Salt	382	.....
Silk, manufactures of	4,588	5,114
Spirits, Wines, etc.	1,024	555
Straw and palm leaf, manufactures of	2,831	1,510
Sugar	25,310,684	24,359,385
Tobacco, manufactures of	13,277	9,198
Toys	828	1,325
Vegetables	3,001	3,160
Wood, and manufactures of	36,918	43,838
Wool, raw	43,552	22,406
Wool, manufactures of	14,799	5,117
All other articles	93,887	81,740
Total shipments domestic mdse.	\$26,201,175	\$25,133,533
Total shipments foreign mdse	41,694	23,722
Carried in Am. steam vessels	\$11,532,313	\$ 9,929,178
Carried in Am. sailing vessels	14,710,556	15,228,077

**Total Value of All Imports and Exports, Territory of Hawaii,
for Fiscal Year Ending June 30, 1904.**

[Courtesy of E. R. Stackable, Collector, Honolulu.]

Countries.	Imports.	Exports.
United States	\$11,987,050	\$25,157,255
Great Britain	622,465	492
British Colonies	904,772	23,120
Germany	347,359	558
Hongkong	189,101	14,027
Japan	1,205,055	5,090
Chile	506,955	.....
France	8,778	18
Other Countries	13,156	4,315
	\$15,784,691	\$25,204,875
Shipments received from the United States.....		\$11,987,050
Imports from foreign countries		3,797,641
		\$15,784,691

**Total Value of Domestic Products Shipped to the United
States and Exported to Foreign Countries During the
Fiscal Year Ending June 30, 1904.**

Articles.	Quantity.	Value.
Sugar, raw	736,491,992 lbs.	\$24,359,385
Coffee, raw	1,481,968 "	184,180
Rice.. ..	40,261 "	1,629
Fruits		128,624
Honey		17,947
Hides	970,381 "	74,331
Wool, raw	169,938 "	22,406
Other.. ..		384,047
Total exports, products		\$25,172,549
Total exports, specie		285,493
		\$25,458,042

Customs Receipts for Fiscal Year Ending June 30th, 1904.

Import Duties	\$1,162,992.15
Tonnage Dues	22,093.39
Official Fees	1,573.34
Fines, Penalties and Forfeitures	2,722.58
Storage, Labor and Drayage	7,683.15
Overtime of Officers	736.00
Immigrant Fund	19,480.00
Other Collections	12,057.54
	\$1,229,338.15

Domestic Exports for the Year Ending June 30th, 1904, of the Following Articles:

Articles	United States Value	Foreign Countries Value
Roots, Herbs and Barks:—Betel leaf.....	\$ 1,047	.....
Awa.....	5,089	.....
All others	3	.....
	\$ 6,139	.....
Fibres and Manufactures of:—Sisal.....	2,572	.....
All other	1,086	.....
	\$ 3,658	.....
Fruit, Green, Ripe or Dried:—Bananas*.....	77,749	467
Pineapples	11,947	223
Alligator Pears	1,364	3
Mangoes.....	10	.....
Papaia	4	.....
All other	218	5
	\$ 91,292	698
Fruit, Preserved and Canned: Pineapples....	32,105	161
Other	78	5
	\$32,183	166
Fruit, Preserved, All Other: Guava Jelly.....	3,278	4
Other	729	19
	\$ 4,007	\$ 23

Value of Carrying Trade to and From the District of Hawaii for Year Ending June 30, 1904.

Nationality	Imports	Exports
American.. . . .	\$ 1,414,940	\$25,182,413
British.. . . .	1,474,521	15,817
France.. . . .	25,757	.....
German	284,666	.....
Italian.. . . .	15,402	.....
Norwegian.. . . .	15,173	.....
Other.. . . .	567,242	6,645
	\$ 3,797,641	\$25,204,875

*128 597 bunches to the United States and 605 bunches to other countries.

Total Number of Vessels Entering and Clearing in the District

COASTWISE*					FOREIGN			
Entered			Cleared		Entered		Cleared	
Ports	Number Vessels	Tons	Number Vessels	Tons	Number Vessels	Tons	Number Vessels	Tons
Honolulu ..	235	469,959	290	524,966	176	391,351	105	316,530
Hilo... ..	33	41,530	40	50,842	3	3,547	...	.....
Kahului ..	9	8,099	23	19,369	12	12,157	...	.....
Koloa	2	1,012	20	18,076	...	.....	1	994
Mahukona .	17	5,550	18	5,850	1	642	...	.....
Total . . .	296	526,150	391	619,103	192	407,697	106	317,524

Summary of Above Table:

	Entered		Cleared	
	Number	Tonnage	Number	Tonnage
Coastwise*	296	526,150	391	619,103
Foreign.. ..	192	407,697	106	317,524
Total.....	488	933,847	497	936,627

**Vessels Entering and Clearing in the District of Hawaii for
Fiscal Year Ending June 30, 1904.**

Nationality.	Vessels Entered.		Vessels Cleared.	
	Tonnage.		Tonnage.	
American	377	667,350	387	672,539
British	74	174,622	75	177,563
Japanese	19	65,487	18	62,027
German	6	8,680	5	6,885
French	2	4,186	2	4,186
Italian	3	4,150	3	4,150
Norwegian	3	3,680	3	3,680
Chilean	4	5,692	3	3,886
Swedish . . . . .	...	.....	1	1,711
	488	933,847	497	936,627

*The figures under the title "Coastwise" refer to American vessels doing business between Hawaii and mainland ports, but do not include vessels engaged in traffic among the Hawaiian Islands.

HAWAIIAN ANNUAL.

Vessels Permanently Documented in the District of Hawaii, June 30, 1904.

Name.	Tonnage		Name.	Tonnage	
	Gross.	Net.		Gross.	Net.
Schr. Ada	27	27	Schr. Lady	29	20
Schr. Alice Kimball.....	107	102	Schr. Lavinia	40	40
Ga. Schr. Brothers	7	5	S. S. Lehua	176	129
Schr. C. L. Woodbury....	105	100	Tug. Leslie Baldwin....	23	23
S. S. Claudine.....	846	615	S. S. Likelike	374	214
Ga. Schr. Eclipse	211	163	Schr. Luka	122	70
S. S. Hanalei	666	502	Schr. Malolo	32	24
S. S. Helene	618	392	Schr. Mary E. Foster. .	950	839
Schr. Helene	927	828	S. S. Mauna Loa	850	536
Scr. S. Hilo	13	7	S. S. Maui	631	404
S. S. Iwalani	588	239	Schr. Moi Wahine.....	95	75
S. S. J. A. Cummins.....	79	75	Schr. Mokihana	15	15
S. S. Jas. Makee.....	301	137	S. S. Mikahala	444	354
S. S. Kaiulani	384	243	S. S. Niihau	341	201
Slp. Kaiulani	13	12	S. S. Noeau	294	221
Schr. Ka Moi	108	108	Schr. Rob Roy.....	17	17
S. S. Kauai	366	265	Tug Rover	44	30
Schr. Kauikeaouli	140	73	S. S. Waialeale	268	176
Schr. Kawailani	24	24	Scr. S. Waiakea	10	6
S. S. Keauhou.....	263	192	Ga. S. Water Witch	9	6
S. S. Kinau	975	773	S. S. W. G. Hall.....	505	380

Championship Races of the Honolulu Rowing Association

In the Annual contests between the Myrtle and Healani Clubs. One and a half mile straight-away course, Pearl Harbor.

SENIOR CREW.			JUNIOR CREW.		
Year	Winner	Time	Winner	Time	
1896.....	Myrtle.....	10.03	Myrtle.....	10.21	
1897.....	Myrtle.....	9.48	Myrtle.....	10.29	1/4
1898.....	Healani.....	10.05 2/5	Healani.....	10.14	2/5
1899.....	Myrtle.....	11.00	Myrtle.....	10.43	
1900.....	Healani.....	10.14	Myrtle.....	11.14	
1901.....	Healani.....	10.37 1/2	Healani.....	11.24	
1902.....	Myrtle.....	10.30 3/5	Myrtle.....	10.31	
1903.....	Healani.....	10.05 2/5	Healani.....	10.16	
1904.....	Myrtle.....	10.48 1/2	Myrtle.....	11.04	2/5

Challenge Cup Races, Hawaiian Rowing and Yachting Association.

1. Won by yacht Healani, July 4, 1889.
 2. Won by yacht Hawaii, July 4, 1890.
 3. Won by yacht Healani, July 4, 1891.
 4. Won by yacht Bonnie Dundee, July 4, 1892.
 5. Won by yacht Gladys, September 13, 1899.
- Not competed for since.

Hawaii's Annual Trade Balance, Etc., From 1880.

Year	Imports	Exports	Excess Export Values	Custom House Receipts
1880	\$ 3,673,268.41	\$ 4,968,444.87	\$ 1,295,176.46	\$ 402,181.63
1881	4,547,978.64	6,885,436.56	2,337,457.92	523,192.01
1882	4,974,510.01	8,299,019.70	3,324,506.69	505,390.98
1883	5,624,240.09	8,133,343.88	2,509,103.79	577,332.87
1884	4,637,514.22	8,856,610.30	4,219,096.08	551,736.59
1885	3,830,544.58	9,158,818.01	5,328,273.43	502,337.38
1886	4,877,738.73	10,565,885.58	5,688,146.85	580,444.04
1887	4,943,840.72	9,707,047.33	4,763,206.61	595,002.64
1888	4,540,887.46	17,707,598.76	7,166,711.30	546,142.63
1889	5,438,790.63	13,874,341.40	8,435,560.77	550,010.16
1890	6,962,201.13	13,142,829.48	6,180,628.35	695,956.91
1891	7,439,482.65	10,258,788.27	2,819,305.62	732,594.93
1892	4,028,295.31	8,060,087.21	4,031,791.90	494,385.10
1893	4,363,177.58	10,818,158.09	6,454,980.51	545,754.16
1894	5,104,481.43	9,140,794.56	4,036,313.13	522,855.41
1895	5,339,785.04	8,474,138.15	3,134,353.11	547,149.04
1896	6,063,652.41	15,515,230.13	9,451,577.72	656,895.82
1897	7,682,628.09	16,021,773.19	8,339,147.10	708,493.05
1898	10,368,815.09	17,346,744.79	6,977,929.70	896,675.70
1899	16,069,576.96	22,628,741.82	6,559,164.86	1,295,628.95
1900 ¹	10,231,197.58	14,404,496.16	4,173,298.58	597,897.14
1901 ²	24,964,693.43	29,342,697.00	4,378,003.57	1,264,862.78
1902	22,036,583.00	24,793,735.00	2,757,152.00	1,327,518.23
1903	13,982,485.00	26,275,438.00	12,292,953.00	1,193,677.83
1904	15,784,691.00	25,204,875.00	9,420,184.00	1,229,338.15

1 Five and one-half months to June 14th. 2 Twelve and one-half months to June 30, 1901. Imports from U. S. ports for 1901 estimated at \$22,000,000, and for 1902 at \$19,000,000.

Seating Capacity of Principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street.....	1,500
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street.....	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
Progress Hall, corner Fort and Beretania streets.....	500
Hawaiian Opera House, King street	1,000
The Orpheum, Fort street	945
Y. M. C. Association Hall, Hotel street	250

Hawaiian Sugar Plantation Statistics.

QUANTITY AND VALUE OF PLANTATION PRODUCTS EXPORTED, FROM 1875.

Year	Sugar		Molasses		Total Export Value
	Pounds	Value	Gallons	Value	
1875 ...	25,080,182	\$ 1,216,388.82	93,722	\$12,183.86	\$ 1,228,572.68
1876 ...	26,072,429	1,272,334.53	130,073	19,510.95	1,291,845.48
1877 ...	25,575,965	1,777,529.57	151,462	22,719.30	1,800,248.87
1878 ...	38,431,458	2,701,731.50	93,136	12,107.68	2,713,839.18
1879 ...	49,020,972	3,109,566.66	87,475	9,622.52	3,119,185.91
1880 ...	63,584,871	4,322,711.48	198,355	29,753.52	4,352,464.73
1881 ...	93,789,483	5,395,399.54	263,587	31,630.44	5,427,020.98
1882 ...	114,177,938	6,320,890.65	221,293	33,193.95	6,354,084.60
1883 ...	114,107,155	7,112,981.12	193,997	34,819.46	7,147,800.58
1884 ...	142,654,923	7,328,896.67	110,530	16,579.50	7,345,476.17
1885 ...	171,350,314	8,356,061.94	57,941	7,050.00	8,363,111.94
1886 ...	216,223,615	9,775,132.12	113,137	14,501.76	9,789,633.88
1887 ...	212,763,647	8,694,964.07	71,222	10,522.76	8,705,486.83
1888 ...	235,888,346	10,818,883.09	47,965	5,900.40	10,824,783.49
1889 ...	242,165,835	13,089,302.10	54,612	6,185.10	13,095,487.20
1890 ...	259,789,462	12,159,585.01	74,926	7,603.29	12,167,188.30
1891 ...	274,983,580	9,550,537.80	55,845	4,721.40	9,555,258.20
1892 ...	263,636,715	7,276,549.24	47,988	5,061.07	7,281,610.34
1893 ...	330,822,879	10,200,958.37	67,282	5,928.96	10,206,887.33
1894 ...	306,684,993	8,473,009.10	72,979	6,050.11	8,479,059.21
1895 ...	294,784,819	7,975,590.41	44,970	3,937.83	7,978,628.24
1896 ...	443,569,282	14,932,172.82	15,885	1,209.72	14,933,382.54
1897 ...	520,158,232	15,390,422.13	33,770	2,892.72	15,393,314.85
1898 ...	444,963,036	16,614,622.53	14,537	919.18	16,615,541.71
1899 ...	545,370,537	21,898,190.97	11,455	358.55	21,898,549.52
1900 ¹ ...	344,531,173	13,919,400.21	120	10.00	13,919,410.21
1901 ² ...	690,882,132	27,094,155.00	93,820	4,615.00	27,098,770.00
1902 ...	720,553,357	23,920,113.00	48,036	2,187.00	23,922,300.00
1903 ...	774,825,420	25,310,684.00	10	1.00	25,310,685.00
1904 ...	736,491,992	24,359,385.00	11,187	712.00	24,360,097.00

Plantation Labor Statistics

COMPARATIVE TABLE SHOWING NATIONALITY AND NUMBER SUGAR PLANTATION LABORERS.

[Compiled From Official Reports, Latest obtainable.]

Nationality	1894	1895	1896	1897	1898	1899	1901	1902
Caucasians ..	563	473	600	675	979	806	991	1,032
Chinese	2,786	3,847	6,289	8,114	7,200	5,979	4,976	3,937
Hawaiians ..	1,903	1,584	1,615	1,497	1,482	1,326	1,470	1,493
Japanese	13,884	11,584	12,893	12,068	16,786	25,644	27,537	31,029
Negroes .....	.....	.....	.....	.....	.....	.....	55	20
Porto Ricans .....	.....	.....	.....	.....	.....	.....	2,095	2,036
Portuguese .	2,177	2,499	2,268	2,218	2,064	2,153	2,417	2,669
Sea Isl'drs...	181	133	115	81	68	79	46	26
Total ...	21,294	20,120	23,780	24,653	28,579	35,987	39,587	42,242

1 Five and one-half months to June 14. 2 Fiscal year ending June 30.

**Table of Receipts, Expenditures, and Public Debt of Hawaii,
for Biennial Periods up to 1894, then Annually.**

Years.	Revenue.	Expenditures.	Cash Balance in Treasury.	Public Debt.
1856	\$ 419,288.16	\$ 424,778.25	\$ 28,006.84	\$ 22,000.00
1858	537,223.86	599,879.61	349.24	60,679.15
1860	571,041.71	612,410.55	13,127.52	128,777.32
1862	528,039.92	606,893.33	507.40	188,671.86
1864	538,445.34	511,511.10	22,583.29	166,649.09
1866	721,104.30	566,241.02	169,059.34	182,974.60
1868	825,498.98	786,617.55	163,576.84	120,815.23
1870	834,112.65	930,550.29	61,580.20	126,568.68
1872	912,130.74	969,784.14	56,752.41	177,971.29
1874	1,136,523.95	1,192,511.79	746.57	355,050.76
1876	1,008,956.42	919,356.93	89,599.49	459,187.59
1878	1,151,713.45	1,110,471.90	130,841.04	444,800.00
1880	1,703,736.88	1,495,697.48	338,880.44	388,900.00
1882	2,070,259.94	2,282,599.33	126,541.05	299,200.00
1884	3,092,085.42	3,216,406.05	2,220.42	898,800.00
1886	3,010,654.61	3,003,700.18	9,174.85	1,065,600.00
1888	4,812,575.96	4,712,285.20	109,465.60	1,936,500.00
1890	3,632,196.85	3,250,510.35	491,152.10	2,599,502.94
1892	3,916,880.72	4,095,891.44	312,141.38	3,217,161.13
1894	3,587,204.98	3,715,232.83	184,113.53	3,417,459.87
1894	1,972,135.43	1,854,053.08	302,676.27	3,574,030.16
1895	2,050,729.41	2,284,179.92	69,225.76	3,764,335.03
1896	2,383,070.78	2,137,103.38	315,193.16	3,914,608.35
1897	2,659,434.16	2,617,822.89	456,804.43	4,390,146.65
1898	2,709,489.12	2,299,937.57	740,280.21	4,457,605.85
1899	3,854,231.50	3,038,638.38	1,531,784.29	4,890,351.49
1900	2,772,871.87	3,727,926.28	624,471.25	4,226,374.61
1901	2,549,167.78	2,262,036.48	287,131.30	939,970.31
1902	2,950,262.58	3,159,479.52	77,914.36	1,093,970.31
1903	2,415,356.33	2,844,054.81	56,613.29	2,185,000.00

Hawaii's Bonded Debt, June 30, 1904.

ACT OF JUNE 13, 1896.

Stock A 5 per cent Bonds.....	\$ 810,000	
Stock E 5 per cent Bonds.....	9,000	
Stock O 5 per cent Bonds	1,000	
Stock U 5 per cent Bonds	50,000	870,000
Fire Claims Bonds issued.....		315,000
Public Improvements 4½% Bonds.....		1,000,000
Total Bonds Outstanding		\$2,185,000

INTERNAL TAXES FOR BIENNIAL PERIODS 1880-1894; SINCE, ANNUAL.

(Compiled from Official Reports.)

Bien'l Periods. Ending Mar.	Real Estate.	Personal Property.	Poll.	Horses.	Ins'rnce.	Dogs.	Carriages.	Seamen.	Roads & Carts.	School.	Totals.
1880	143,716	115,944	35,484	43,399	....	15,173	5,780	815	64,940	67,472	532,723
1882	187,929	208,096	45,998	42,819	....	13,965	7,125	642	90,041	87,322	683,937
1884	223,100	254,286	52,964	21,975	1,941	13,924	8,750	402	103,054	100,278	780,674
1886	227,195	262,307	61,745	*....	3,303	13,315	10,635	114	118,256	115,298	812,107
1888	252,362	299,974	63,115	....	6,279	11,985	11,835	...	120,872	119,565	885,987
1890	339,390	399,908	69,116	....	4,056	14,100	13,940	132,286	131,160	1,032,963	1,032,963
1892	358,745	341,205	78,964	....	4,153	13,660	14,628	P'n'ty & Costs	152,137	151,906	1,115,401
1894	338,894	213,126	78,990	....	3,867	11,744	11,980	5,476	152,268	152,247	1,068,592
1894 9 mos.	167,083	151,580	39,050	....	1,850	4,698	4,427	3,922	74,891	75,082	522,583
1895	196,608	164,272	43,663	....	1,803	5,971	5,425	7,297	84,183	83,470	592,692
1896	240,971	210,194	46,655	....	1,837	6,302	5,889	7,255	90,297	89,443	698,844
1897	246,828	242,719	47,973	....	974	7,313	5,849	10,375	101,858	95,814	759,703
1898	268,203	266,821	49,580	....	2,185	6,248	5,717	8,476	105,814	98,974	811,818
1899	383,031	377,730	69,303	Income	2,882	6,019	6,083	10,099	145,130	138,420	1,138,706
1900	444,062	490,393	49,922	287,367	3,224	4,136	7,387	9,294	107,070	99,838	1,215,326
1901	532,637	571,249	46,299	205,997	3,846	4,325	8,470	11,111	100,211	92,592	1,658,107
1902	500,456	592,325	51,009	172,542	4,085	4,787	9,522	10,834	110,300	102,016	1,651,023
1903	618,891	607,590	48,148	....	4,623	4,485	9,962	13,818	104,844	96,296	1,681,199

*Included in personal property.

Annual Taxes, from 1895, Showing per Capita Rate Collected.

	Taxes collected	Tax per capita	Taxes collected	Tax per capita
1895	\$ 592,692	*\$5.62	1,215,326	7.94
1896	668,844	6.32	1,658,107	10.76
1897	759,704	6.54	1,651,023	10.72
1898	811,818	6.45	1,681,199	10.91
1899	1,138,706	7.40		

*Omitting fractions.

SUMMARY OF METEOROLOGICAL OBSERVATIONS, HONOLULU, 1903-'04.

Compiled from Records of Weather Bureau, by R. C. Lydecker.

(Continued from preceding Annuals.)

Month.	Barometer		Rain- fall	Rel. Humid.		Temperature.				Hum.		Cloud Wind Amt. Force		
	9 a. m.	3 p. m.		9 a. m.	9 p. m.	Min.	Max.	6 a. m.	2 p. m.	9 p. m.	Aver.		gr. to cub. ft.	
July	30.025	29.976	2.08	65.6	71.1	72.8	83.0	72.8	81.6	73.7	77.6	6.73	3.2	3.1
August	30.032	29.971	2.48	68.5	73.3	72.8	83.4	75.4	82.5	76.3	77.9	7.07	4.1	2.1
September	30.024	29.957	5.74	66.8	73.2	72.6	83.0	75.0	81.5	76.0	77.5	6.96	3.5	2.3
October	30.007	29.938	2.17	69.4	76.2	70.3	80.4	72.0	79.2	74.0	75.1	6.87	4.3	2.2
November	30.028	29.953	2.26	68.3	75.9	69.2	78.9	70.8	77.6	72.5	73.6	6.49	3.5	1.3
December	30.035	29.900	1.44	71.0	78.0	67.0	78.4	68.0	77.6	71.0	72.2	6.42	2.9	1.0
January	30.072	29.987	5.45	70.5	75.6	67.4	76.2	69.0	75.3	70.4	71.5	6.05	4.2	1.7
February	29.923	29.860	24.87	82.9	86.0	65.4	75.4	67.2	73.8	69.0	70.1	6.78	7.0	0.7
March	29.956	29.886	7.30	80.0	86.5	66.0	77.0	68.1	75.8	69.7	71.2	6.96	6.7	0.3
April	30.047	29.980	3.19	69.9	73.7	68.7	77.2	70.1	75.9	71.4	72.5	6.22	4.7	2.2
May	30.040	29.979	1.33	63.4	73.5	68.3	80.8	70.2	79.5	72.6	74.1	6.31	3.0	0.9
June	30.035	29.986	0.72	64.2	69.8	71.7	82.0	73.1	80.7	74.6	76.1	6.52	3.6	1.6
Year	30.019	29.953	59.03	70.0	76.1	69.4	79.6	71.0	78.4	72.6	74.1	6.62	4.2	1.6

Mean pressure for year, 29.986.

The average yearly rainfall 1884-1903 was 37.58 inches.

TABLE OF RAINFALL, PRINCIPAL STATIONS

From Government Survey Weather Service Records.

STATION.	OBSERVER	July	Aug.	1903		Nov.	Dec.
				Sept.	Oct.		
HAWAII							
Waiakea	C. C. Kennedy....	20.13	7.32	13.46	12.37	14.06	6.10
Hilo (Town)....	L. C. Lyman.....	22.22	8.11	15.69	11.21	15.69	6.03
Kaumana	J. E. Gamalielson..	32.79	10.93	21.52	14.62	24.04	7.64
Pepeekeo	W. H. Rogers.....	16.82	9.42	12.90	11.13	14.26	3.25
Hakalau	Geo. Ross	19.63	9.23	14.08	10.45	14.59	4.69
Laupahoehoe ..	E. W. Barnard....	27.26	9.50	10.01	17.80	17.82	6.85
Ookala	Mrs. W. G. Walker	10.60	5.55	6.75	9.85	13.15	2.80
Kukaiau	E. Madden	12.73	4.76	2.43	6.73	11.61	2.67
Paauhau	J. Gibb.....	5.54	1.83	1.83	4.93	12.24	1.72
Honokaa	J. M. Muir	6.20	2.22	2.87	5.02	13.95	2.04
Waimea	E. W. Lyons.....	5.20	1.74	1.58	2.65	4.55	0.55
Kohala.	B. D. Bond.....	6.85	5.38	2.65	3.96	6.79	2.20
Holualoa.....	L. S. Aungst.....	8.40	10.67	7.86	3.47	2.51	2.30
Kealakekua ...	S. H. Davis	9.60	10.79	8.24	5.13	3.24	2.69
Naalehu.....	G. C. Hewitt.....	6.06	2.04	1.56	0.85	2.54	1.66
Pahala	T. C. Wills.....	2.53	0.46	1.55	1.25	4.15	1.50
Volcano House	St. C. Bidgood....	11.82	2.47	5.46	3.88	9.85	2.30
Pahoa	M. J. Soares	20.15	7.02	12.12	6.80	14.20	5.54
Kapoho	H. J. Lyman.....	9.54	4.62	8.52	2.03	10.28	2.16
MAUI.							
Haleakala Rh..	L. Von Tempsky..	2.18	1.30	6.54	4.21	5.18	4.88
Puomalei	A. McKibbin	6.86	4.06	8.73	7.53	7.06	7.74
Paia	J. J. Jones	4.84	1.69	6.09	3.49	2.83	3.62
Kula	D. Von Tempsky..	1.75	5.39	5.04	3.55	1.00	1.00
Haiku	D. D. Baldwin....	9.58	5.06	10.06	7.61	7.67	5.86
Kipahulu	A. Duisenberg	9.72	10.42	10.53	5.70	7.20	5.30
Mokulau	Jos. Garnett	9.35	7.28	11.35	4.34	5.23	4.29
Wailuku	Bro. Frank	1.22	0.26	1.39	3.61	2.35	1.48
OAHU.							
Punahou.....	R. C. Lydecker....	2.08	2.48	5.74	2.17	2.26	1.44
Kulaokahua ...	W. R. Castle.....	1.06	1.75	4.06	1.20	1.91	0.68
Kapiolani Park.	H. McCullum	0.87	0.35	1.86	0.72	0.65	0.68
Manoa	F. N. Parker.....	7.96	10.17	17.22	6.75	11.31	5.26
Kalihi-uka	Dr. Geo. Huddy....	7.63	11.15	12.18	9.02	11.29	6.25
Nuuanu Ave....	W. W. Hall.....	2.66	2.91	6.01	2.06	4.95	1.13
Nuuanu Valley.	B. F. Cook.....	4.94	5.92	8.75	2.91	7.96	2.70
Luakaha	L. A. Moore.....	15.35	15.44	20.97	7.89	18.94	8.81
Waimanalo	A. Irvine	2.37	1.16	3.71	1.96	3.76	1.99
Maunawili	Jno. Herd	6.92	6.00	6.63	3.19	6.90	4.81
Ahuimanu	H. Macfarlane....	7.42	6.38	6.70	4.80	8.36	8.23
Kahuku	J. Smeaton	1.36	1.44	1.53	1.46	1.97	2.67
Ewa Plantation.	G. F. Renton.....	0.00	0.18	1.83	1.76	2.17	0.18
Oahu Sugar Co	Aug. Ahrens	0.00	0.00	1.50	0.77	0.90	0.00
Wahiawa	L. G. Kellogg....	3.23	2.86	3.12	2.36	1.88	1.79
KAUAI.							
Lihue	G. N. Wilcox.....	1.91	2.17	3.26	3.13	1.99	3.01
Kealia	G. H. Fairchild....	0.74	0.36	1.19	3.05	0.82	1.53
Kilauea	C. A. Mann	4.11	2.75	3.94	8.82	2.52	9.50
Hanalei		7.48	5.95	11.57	10.69	4.20	7.76
Eleele	McBryde Sug. Co.	0.78	0.80	7.46	2.41	0.57	0.28
Koloa	F. L. Zollers	1.11	1.83	5.72	3.30	1.77	1.74

THROUGHOUT THE HAWAIIAN ISLANDS, 1903-1904.

By R. C. Lydecker. Continued from last Annual.

LOCALITY.	Ft. Ele.	1904							Total
		Jan.	Feb.	Mar.	April	May	June		
HAWAII.									
Waiakea	50	22.87	11.17	0.90	22.88	7.80	8.73	147.79	
Hilo	100	20.03	11.55	0.85	28.77	6.75	8.25	155.15	
Kaumana	1250	31.48	14.18	0.72	49.83	11.72	10.36	229.83	
Pepeekeo	100	24.24	8.59	1.38	24.06	7.15	6.29	139.49	
Hakalau	200	28.30	8.70	3.22	34.30	9.29	8.14	164.71	
Laupahoehoe	500	24.67	7.80	10.85	47.37	9.15	6.76	195.84	
Ookala	400	19.05	10.30	6.60	35.75	6.55	5.35	132.30	
Kukaiau	250	15.03	9.86	2.97	33.10	5.70	1.94	109.53	
Paaupau Mill	300	10.68	7.85	2.07	20.37	3.35	1.36	73.57	
Honokaa	425	12.24	8.82	4.47	20.80	4.30	1.56	84.49	
Waimea	2720	16.52	9.68	3.60	7.29	2.51	1.58	57.45	
Kohala (Mission)	521	6.63	13.62	4.14	16.49	3.25	1.48	73.44	
Holualoa	1350	1.45	16.51	8.40	11.86	8.50	8.43	90.36	
Kealakekua	1580	4.41	16.39	6.23	15.37	8.12	10.95	101.16	
Naalehu	650	5.15	13.91	5.61	8.77	2.93	1.76	52.84	
Pahala	850	2.65	15.10	4.69	7.06	2.79	0.38	44.11	
Kilauea (Volcano Hse.) ..	4000	16.19	17.27	4.47	20.29	6.96	2.65	103.61	
Puna Plantation	600	28.31	18.32	3.13	15.07	9.72	8.82	149.20	
Kapoho	110	19.69	20.40	2.43	2.72	7.27	5.18	94.84	
MAUI.									
Haleakala Ranch	2000	24.16	15.72	9.20	6.89	0.82	0.09	81.17	
Puunomalei	1400	16.17	13.00	9.92	12.72	1.61	2.33	97.73	
Paia	180	9.29	21.07	8.91	3.26	0.96	0.89	66.94	
Erehwon	4500	11.21	21.45	9.68	2.99	2.16	1.09	66.31	
Haiku	700	11.90	12.73	8.90	9.92	2.00	2.01	93.30	
Kipahulu	308	14.30	23.87	9.19	6.91	3.83	4.18	111.15	
Kaupo	285	17.19	25.37	9.48	6.05	4.55	3.48	107.96	
Wailuku	250	2.50	20.50	11.31	0.51	0.26	...	.....	
OAHU.									
Punahou (Weather Bureau)	47	5.45	24.87	7.30	3.19	1.33	0.79	59.10	
Kalaokahua	50	4.09	24.93	6.28	1.51	0.73	0.36	48.56	
Kapiolani Park	10	3.19	22.72	5.46	...	...	...	.....	
Woodlawn Dairy	285	11.60	27.83	6.90	8.58	5.74	5.34	124.66	
Kalihi Valley	480	14.18	30.30	11.15	9.77	5.45	4.38	132.75	
Nuuanu Avenue	50	7.20	25.08	6.68	3.20	1.37	1.33	64.58	
Nuuanu Electric Station...	405	10.88	22.51	6.65	7.66	3.59	3.03	87.50	
Nuuanu Water Works...	850	17.71	27.96	11.03	17.62	7.04	8.03	176.79	
Waimanalo	25	2.82	41.03	16.35	2.03	0.44	0.66	78.28	
Maunawili	300	5.95	44.65	19.97	4.59	2.30	2.69	114.60	
Ahuimanu	350	9.17	38.09	19.37	8.57	2.23	3.85	123.17	
Kahuku	25	1.94	36.82	9.25	2.46	0.72	0.45	62.07	
Honouliuli	60	1.32	25.21	6.97	0.49	0.09	0.72	40.92	
Waipahu	200	2.75	30.04	7.17	0.00	0.00	0.00	43.13	
Wahiawa	900	7.73	33.34	15.61	0.55	1.46	2.95	76.88	
KAUAI.									
Lihue	200	3.56	22.38	10.43	4.92	1.13	2.13	60.02	
Kealia	15	3.21	21.43	8.79	2.62	0.53	0.84	45.11	
Kilauea	325	5.37	15.35	17.03	10.44	1.99	3.11	84.93	
Hanalei	10	11.74	15.22	21.90	....	1.31	2.98	.....	
Eleele	150	2.50	19.93	4.74	1.84	1.20	0.59	43.10	
Koloa	50	3.38	17.18	6.24	2.87	1.61	1.93	48.68	

VITAL STATISTICS TERRITORY OF HAWAII.

For six months ending June, 1903, and twelve months to close of fiscal year, June 30, 1904. Compiled from Reports of Board of Health.

ISLANDS BY DISTRICTS	BIRTHS		MARRIAGES		DEATHS	
	6 Mos.	12 Mos.	6 Mos.	12 Mos.	6 Mos.	12 Mos.
OAHU						
Honolulu.....	265	582	187	634	458	870
Ewa.....	106	341	6	38	78	297
Waianae.....	18		2		10	
Waialua.....	29		4		21	
Koolau.....	14		7		25	
Total.....	427	923	206	672	592	1,167
MAUI AND MOLOKAI.						
Wailuku, Kihei, Kula.....	84	534	89	209	86	574
Lahaina.....	14		10		33	
Makawao.....	46		16		27	
Hana.....	46		6		37	
Kona, Molokai.....	17		8		9	
Kalaupapa, Molokai.....	13		16		54	
Total.....	220	534	90	209	246	574
HAWAII.						
Hilo and North Hilo.....	115	554	61	196	169	392
North Kohala.....	82		12		42	
South Kohala.....	14		4		4	
Hamakua.....	65		34		34	
North Kona.....	30		3		20	
South Kona.....	12		6		12	
Kau.....	22		13		38	
Puna.....	23		5		20	
Olaa.....	25		4		21	
Total.....	388	554	142	196	360	392
KAUAI						
Waimea.....	39	344	7	105	37	234
Koloa.....	24		16		44	
Lihue.....	31		12		11	
Kealia.....	51		7		29	
Hanalei.....	36		2		15	
Total.....	181	344	44	105	136	234
SUMMARY						
Oahu.....	427	923	206	672	592	1,167
Maui and Molokai.....	220	534	90	209	246	574
Hawaii.....	388	554	142	196	360	392
Kauai.....	181	344	44	105	136	234
January-June, 1903.....	1,216	2,355	482	1,182	1,334	2,367
July-December, 1902.....	1,170	.....	514	.....	1,247	.....
Total 12 months, 1902-3.....	2,386	.....	996	.....	2,581	.....
Prior 12 months.....	2,346	.....	1,324	.....	2,747	.....

NOTABLE TRIPS OF PACIFIC OCEAN STEAMERS

TRIP.	MILES.	STEAMER.	DATE.	D.	H.	M.
San Francisco to Honolulu,	2100	Alameda	March 1903	5	14	36
" " "	2100	China	Aug. 1899	5	9	55
" " "	2100	America Maru,	July 1899	5	9	59
" " "	2100	Korea	Nov. 1902	5	6	50
" " "	2100	Korea	Jan. 1903	4	22	15*
Honolulu to San Francisco,	2100	Mariposa	May 1898	5	22	0
" " "	2100	China	Dec. 1898	5	7	41
" " "	2100	China	Nov. 1902	5	2	16*
" " "	2100	Nippon Maru	Jan. 1900	5	2	21
San Francisco to Yokohama,	4764	China	Oct. 1903	9	4	17*
Yokohama to San Francisco,	4577	Korea	Oct. 1902	10	15	15*
Yokohama to Honolulu,	3400	China	Dec. 1897	8	6	15*
" " "	3400	Coptic	Feb. 1902	9	2	17
San Francisco to Sydney,	7297	Alameda	Dec. 1895	21	10	0*
Auckland to Sydney,	1286	Mariposa	Jan. 1886	3	11	50
" " "	1286	Sonoma	Jan. 1902	3	8	40*
Auckland to Honolulu,	3810	Mariposa	April 1882	11	10	0*
" " "	3810	Alameda	July 1897	11	10	35
Sydney to Auckland,	1286	Zealandia	Dec. 1890	3	20	51*
Honolulu to Samoa,	2279	Mariposa	Jan. 1886	6	7	45
" Auckland,	3810	Zealandia	April 1882	11	23	0
" Victoria,	2342	Warrimoo	July 1896	6	22	19
" " "	2342	Miowera	Aug. 1886	7	7	0
" " "	2342	Manuka	June 1904	6	14	50*
Victoria to Honolulu,	2360	Warrimoo	Jan. 1896	7	1	9*
Vancouver to Sydney,	6999	Warrimoo	Nov. 1895	20	15	17*
" " "	6999	Miowera	Sept. 1896	21	9	0
Honolulu to Sydney,	4865	Manuka	July 1904	13	16	55†
Sydney to Honolulu,	—	Miowera	Aug. 1896	14	0	30
Sydney to Vancouver,	6670	Warrimoo	April 1896	21	4	23*

* Best record trips.

† Including all stops.

Clipper Passages To and From the Coast, Etc.

- 1859—Ship Black Hawk, 9 days and 9 hours from San Francisco.
 1861—Ship Fair Wind, 8 days and 17½ hours from San Francisco.
 1861—Ship Norwester, 9 days and 16 hours from San Francisco.
 1861—Bark Comet, 9 days and 20 hours from San Francisco.
 1862—Ship Storm King, 9 days and 10 hours from San Francisco.
 1879—Bktne. Catharine Sudden, 9 days and 17 hours to Cape Flattery.
 1879—Schooner Claus Spreckels, 9½ days from San Francisco to Kahului.
 1880—Schooner Jessie Nickerson, 10 days from Honolulu to Humboldt.
 1881—Brgtne. W. G. Irwin, 8 days and 17 hours from S. F. to Kahului.
 1884—Schooner Emma Claudina, 9 days and 20 hours from Hilo to S. F.
 1884—Schooner Rosario, 10 days from Kahului to San Francisco.
 1884—Brgtne. Consuelo, 10 days from Honolulu to San Francisco.
 1886—Bark Hesper, 9½ days from Honolulu to Cape Flattery.
 1888—Brgtne. Consuelo, 9 days 20 hours from San Francisco to Honolulu.
 1893—Bktne. Irmgard, 9 days 16 hours from San Francisco.
 1893—Bktne. S. G. Wilder, 9 days 14 hours from San Francisco.
 1898—Bark Rhoderic Dhu, 9½ days from Hilo to San Francisco.
 1902—Ship Erskine M. Phelps, 97 days from Norfolk, Va.
 1902—Ship John Currier, 35 days from Newcastle, N. S. W.
 1902—Bktne. Lahaina, 12½ days from Eleele, Kauai, to Portland, Ore.
 1903—Bark Annie Johnson, 8 days 16 hours from San Francisco.

HAWAIIAN SUGAR CROPS, 1900-1904.

From Table Prepared for Hawaiian Planters' Association, by W. O. Smith, Secretary.

[Earlier years from 1891 can be found in the Annual for 1901.]

ISLANDS.	1900	1901	1902	1903	1904
Production of Hawaii.....	115,224	134,618	121,295	170,665	122,865
“ “ Maui	57,347	58,349	56,726	84,776	77,985
“ “ Oahu	53,625	99,534	107,870	121,066	102,019
“ “ Kauai	63,348	67,537	69,720	61,484	64,606
Grand total.....	289,544	360,038	355,611	437,991	367,475
HAWAII PLANTATIONS.					
Waiakea Mill Co.....	9,226	10,800	8,700	9,954	6,151
Hilo Portuguese Sugar Mill Co..	967	.....	.....	.....	.....
Hawaii Mill Co.....	.....	843	985	1,503	1,728
Hilo Sugar Co.....	7,841	10,214	9,255	13,108	7,701
Onomea Sugar Co.....	7,131	8,722	11,880	13,472	10,940
Pepeekeo Sugar Co.....	6,207	7,173	6,627	6,000	4,907
Honomu Sugar Co.....	5,328	4,401	6,235	6,384	5,489
Hakalau Plantation Co.....	11,931	10,932	11,700	11,293	8,396
Laupahoe Sugar Co.....	4,119	5,504	7,909	4,856	4,336
Ookala Sugar Plantation Co....	3,302	4,968	1,157	3,942	2,214
Kukaiu Plantation Co.....	1,525	2,000	1,118	1,746	1,275
Kukaiu Mill Co.....	1,530	2,000	1,118	1,746	1,274
Hamakua Mill Co.....	6,078	7,808	2,105	6,950	4,691
Paaui Sugar Plantation Co....	7,629	9,635	1,322	9,136	7,533
Honokaa Sugar Co.....	8,117	9,903	3,089	8,587	7,402
Pacific Sugar Mill.....	4,774	4,948	2,517	6,059	3,388
Niuli Mill and Plantation.....	1,805	1,516	1,146	1,903	1,189
Halawa Plantation	1,571	1,357	575	1,860	1,016
Kohala Sugar Co.....	3,345	3,160	1,096	5,409	2,663
Union Mill Co.....	2,265	2,003	463	3,380	1,776
Hawi Mill	2,277	2,727	1,373	5,563	3,631
Beecroft Plantation ...	632	325	.....	.....	.....
Kona Sugar Co.....	285	1,500	1,391	1,850	897
Hutchinson Sugar Plantation Co.	8,338	9,928	8,021	7,527	5,741
Hawaiian Agricultural Co.....	9,001	10,956	11,998	18,888	10,954
Puakea Plantation .....	.....	145	307	366	201
Olaa Sugar Co.....	.....	1,150	16,748	15,030	13,788
Puna Sugar Co.....	.....	.....	2,460	3,603	3,146
Puako Plantation .....	.....	.....	.....	550	438
	115,224	134,618	121,295	170,655	122,865

HAWAIIAN SUGAR CROPS, 1900-1904—Continued.

MAUI PLANTATIONS.	1900	1901	1902	1903	1904
Kipahulu Sugar Co.....	1,890	1,992	1,427	1,622	1,415
Hamoia Plantation	2,114	1,450	1,748	.....	.....
Hana Plantation Co.....	3,406	2,774	2,700	4,922	2,662
Haiku Sugar Co.....	5,512	5,488	4,234	6,397	*
Paia Plantation	6,795	7,216	4,146	7,856	13,521
Hawaiian Commercial & Sugar Co	17,858	22,345	19,477	33,230	29,829
Wailuku Sugar Co.....	7,976	7,902	5,934	7,490	6,451
Olowalu Co.....	1,480	1,240	1,055	843	1,125
Pioneer Mill Co., Ltd.....	10,316	6,568	9,960	16,530	17,036
Kihei Plantation Co., Ltd.....	.....	1,374	5,562	5,629	5,461
Maui Sugar Co.....	.....	.....	483	257	485
	57,347	58,349	56,726	84,776	77,985
OAHU PLANTATIONS.					
Waimanalo Sugar Co.....	2,932	3,045	2,985	3,218	2,963
Heeia Agricultural Co., Ltd.....	2,309	1,507	631	.....	.....
Laie Plantation	179	1,693	430	724	597
Kahuku Plantation Co.....	5,647	7,072	5,623	8,212	6,360
Waialua Agricultural Co.....	1,516	17,699	17,001	19,800	18,682
Waianae Co.....	4,019	4,020	5,000	5,348	5,500
Ewa Plantation Co.....	21,573	33,036	38,775	33,162	29,797
Apokaa Sugar Co.....	.....	.....	901	610	874
Oahu Sugar Co.....	15,450	21,454	26,724	29,256	20,870
Honolulu Plantation Co.....	.....	10,008	9,800	20,736	16,376
	53,625	99,534	107,870	121,066	102,019
KAUAI PLANTATIONS.					
Kilauea Sugar Plantation Co....	5,254	5,364	3,762	3,012	1,850
Makee Sugar Co.....	8,575	9,954	11,232	8,215	7,840
Lihue Plantation Co.....	15,289	18,356	13,674	11,375	14,611
Grove Farm Plantation.....	1,962	2,183	2,915	1,806	1,679
Kokoa Sugar Co.....	5,004	5,492	5,001	4,825	6,172
McBryde Sugar Co.....	1,700	2,208	9,113	11,922	10,535
Hawaiian Sugar Co.....	13,480	13,419	11,480	10,324	11,493
Gay & Robinson.....	2,001	1,554	2,265	1,645	1,665
Waimea Sugar Mill Co.....	976	919	565	540	627
Kekaha Sugar Co.....	8,287	7,412	8,978	7,064	7,447
Estate of V. Knudsen.....	730	676	735	666	687
Total	63,348	67,537	69,720	61,484	64,606

*The Haiku Sugar Co. and Paia Plantation now comprise the Maui Agricultural Co.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mills. (Corrected to Oct 1, 1904.)

NAME	LOCATION	MANAGER	AGENTS
Apokaa Sugar Co*	Ewa, Oahu	G. F. Renton	Castle & Cooke
Ewa Plantation	Ewa, Oahu	G. F. Renton	Castle & Cooke
Gay & Robinson*	Makaweli, Kauai	Gay & Robinson	Waterh'se Tr. Co.
Grove Farm*	Nawiliwili, Kauai	R. L. Wilcox	Hackfeld & Co.
Hakalau Plantation Co.	Hilo, Hawaii	Geo. Ross	Irwin & Co.
Halawa Sugar Co.	Kohala, Hawaii	T. S. Kay	Waterh'se Tr. Co.
Hamakua Mill Co.	Hamakua, Hawaii	A. Lidgate	Davies & Co.
Hana Plantation Co.	Hana, Maui	E. Worthington	Grinbaum & Co.
Hawi Mill & Plantation	Kohala, Hawaii	J. Hind	Hind, Rolpn & Co.
Haw. Agricultural Co.	Kau, Hawaii	W. G. Ogg	Brewer & Co.
Haw. Com. & Sugar Co.	Puunene, Maui	H. P. Baldwin	Alex. & Baldwin
Hawaiian Sugar Co.	Makaweli, Kauai	B. D. Baldwin	Alex. & Baldwin
Hawaii Mill Co.	Hilo, Hawaii	W. H. Campbell	Hackfeld & Co.
Hilo Sugar Co.	Hilo, Hawaii	John A. Scott	Irwin & Co.
Honolulu Plant'n Co.	Halawa Oahu	Jas. A. Low	Irwin & Co.
Honokaa Sugar Co.	Hamakua, Hawaii	K. S. Gjerdrum	Schaefer & Co.
Honomu Sugar Co.	Hilo, Hawaii	Wm. Pullar	Brewer & Co.
Hutchinson S. Plant. Co.	Kau, Hawaii	C. Wolters	Irwin & Co.
Kahuku Plantation	Kahuku, Oahu	Andrew Adams	Alex. & Baldwin
Kekaha Sugar Co.	Kekaha, Kauai	H. P. Faye	Hackfeld & Co.
Kilauea Sug. Plant. Co.	Kilauea, Kauai	Andrew Moore	Irwin & Co.
Kipahulu Sugar Co.	Kipahulu, Maui	A. Gross	Hackfeld & Co.
Kihei Plantation*	Kihei, Maui	Jas. Scott	Alex. & Baldwin
Kohala Plantation	Kohala, Hawaii	E. E. Olding	Castle & Cooke
Koloa Sugar Co.	Koloa, Kauai	P. McLane	Hackfeld & Co.
Kailua Sugar Co.	Kona, Hawaii		C. J. Hutchins
Kukaiiau Mill Co(†)	Hamakua, Hawaii	E. Madden	Davies & Co.
Kukaiiau Plant Co.	Hamakua, Hawaii	Albert Horner	Hackfeld & Co.
Laie Plantation	Laie, Oahu	S. E. Wooley	Waterh'se Tr. Co.
Laupahoehoe Sug. Co.	Laupahoehoe, Ha.	C. McLennan	Davies & Co.
Lihue & Hanam'lu Mill	Lihue, Kauai	F. Weber	Hackfeld & Co.
Makee Sugar Co.	Kealia, Kauai	G. H. Fairchild	
Maui Agrl. Co.	Haiku, etc., Maui	H. A. Baldwin	Alex. & Baldwin
McBryde Sugar Co.	Wahiawa, Kauai	W. Stodart	Davies & Co.
Niulii Mill & Plant'n	Kohala, Hawaii	Robert Hall	Davies & Co.
Oahu Sugar Co.	Waipahu, Oahu	A. Ahrens	Hackfeld & Co.
Olaa Sugar Co.	Olaa, Hawaii	Jno. Watt	Bishop & Co.
Olowalu Co.	Olowalu, Maui	Geo. Gibb	Irwin & Co.
Onomea Sugar Co.	Hilo, Hawaii	John T. Moir	Brewer & Co.
Ookala Sugar Co.	Ookala, Hawaii	W. G. Walker	Brewer & Co.
Paauhau Sug. Plant Co.	Hamakua, Hawaii	Jas. Gibb	Irwin & Co.
Pacific Sugar Mill(†)	Hamakua, Hawaii	D. Forbes	Schaefer & Co.
Pepeekeo Sugar Co.	Hilo, Hawaii	Jas. Webster	Brewer & Co.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands—Continued.

NAME	LOCATION	MANAGER	AGENTS
Pioneer Mill Co., Ltd.	Lahaina, Maui	L. Barkhausen	Hackfeld & Co.
Puakea Plant'n Co*	Kohala, Hawaii	H. R. Bryant	Davies & Co.
Puako Plantation	S. Kohala, Hawaii	W. Vredenberg	Hind, Rolph & Co.
Union Mill Co.	Kohala, Hawaii	H. H. Renton	Davies & Co.
Waiakea Mill Co.	Hilo, Hawaii	C. C. Kennedy	Davies & Co.
Waialua Agri Co.	Waialua, Oahu	W. W. Goodale	Castle & Cooke
Waianae Plantation	Waianae, Oahu	Fred Meyer	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui	C. B. Wells	Brewer & Co.
Waimanalo Sugar Co.	Waimanalo, Oahu	Geo. Chalmers	Irwin & Co.
Waimea Sugar Mill Co.	Waimea, Kauai	Jno. Fassoth	Castle & Cooke

REDEMPTION OF HAWAIIAN COINS.

In the redemption of Hawaiian silver coin by the United States Government, up to November 22, 1904, there have been taken up and shipped away the sum of \$822,000 in the following denominations:

Denominations.	Amt. Issued.	Redeemed.	Out-standing.
Dollars	\$ 500,000	\$452,500	\$ 47,500
Half-dollars	350,000	305,500	47,500
Quarters	125,000	64,000	61,000
Dimes	25,000	None	25,000
Total	\$1,000,000	\$822,000	\$178,000

Comparative Assessments Real and Personal Property, For Years 1901 to 1904, Inclusive.

Year.	Real Estate.	Personal.	Total.
1901	\$29,735,399	\$31,299,930	\$61,035,329
1902	33,798,034	38,125,885	71,923,919
1903	34,553,304	38,547,182	73,100,486
1904	32,381,224	38,004,464	70,385,688

Tables of Comparative View of Commerce, from 1845, as also Principal Articles of Exports, from 1860, will be found in the Annuals, 1879-1886. Subsequent issues present their continuity at the sacrifice of earliest years owing to page limitations. The Annuals for 1901 and for 1902 gave these two important tables from 1871 to the close of Hawaiian independence.

List of Principal Stock and Sheep Ranches Throughout the Islands.

RANCH NAME.	CHARACTER	MANAGER	LOCATION.	HONO. AGENT.
Erehwon Station.	Cattle.	D. von Tempsky.	Makawao, Maui.	J. M. Dowsett
Gay & Robinson.	Cattle and Sheep.	Gay & Robinson.	Niihau	Waterhouse Tr. Co.
Greenwell's.	Cattle and Sheep.	W. H. Greenwell.	S. Kona, Hawaii.	Waterhouse Tr. Co.
Haiku Ranch.	Stock.	F. C. Baldwin.	Haiku, Maui.	Alexander & Baldwin
Haleakala.	Stock.	L. von Tempsky.	Makawao, Maui.	Alexander & Baldwin
Heeia.	Cattle.	Geo. W. Rowan.	Koolau, Oahu.	C. Bolte
Honouliuli.	Stock.	L. Warren.	Ewa, Oahu.	H. von Holt
Honolua.	Stock.	R. C. Searle.	Honolua, Maui.	Alexander & Baldwin
Huehue.	Stock.	John Maguire.	N. Kona, Hawaii.	Davies & Co.
Humuula.	Sheep.	S. Parker, Jr.	Kohala, Hawaii.	F. W. Wundenburg
Kahoolawe.	Sheep.	Chris Conradt.	Kahoolawe.	Waterhouse Tr. Co.
Kahuku.	Stock.	Samuel Norris.	Kau, Hawaii.	J. F. Morgan
Kalawao and Waimalu.	Stock.	Wm. Campbell.	Kahuku, Oahu.	H. von Holt
Kaneohe.	Stock.	L. L. McCandless.	Ewa, Oahu.	C. Brown
Kapapala.	Stock.	George J. Campbell.	Koolau, Oahu.	C. Bolte
Lanai Ranch.	Sheep.	J. Monsarrat.	Kau, Hawaii.	Brewer & Co.
Leilehua.	Stock.	Chas. Gay.	Lanai	Irwin & Co.
Makua.	Stock.	W. A. Buick.	Waianae, Oahu.	Hawn Trust Co.
Waiohuli.	Stock.	L. L. McCandless.	Waianae, Oahu.	C. Brown
Mokuleia.	Stock.	P. Cockett.	Waikapu, Maui.	Waterhouse Tr. Co.
Molokai Ranch.	Stock and Sheep.	G. C. Monroe.	Waialua, Oahu.	H. Focke
Paris.	Stock.	John D. Paris.	Molokai	A. W. Carter
Parker's.	Stock.	F. W. Carter.	S. Kona, Hawaii.	Waterhouse Tr. Co.
Puakea.	Cattle.	A. Mason.	Waimea, Hawaii.	A. W. Carter
Puuhoe.	Stock.	Palmer Woods.	Mahukona.	Waterhouse Tr. Co.
Puuhoku.	Cattle and Sheep.	J. F. Brown.	Kohala, Hawaii.	
Puuwaawaa.	Stock.	Robt. Hind.	East Molokai.	J. F. Brown
Rice's.	Stock.	W. H. Rice.	Kona, Hawaii.	Hind, Rolph & Co.
Raymond's.	Stock.	J. W. L. Marshall.	Lihue, Kauai.	
Umikoa.	Stock.	R. Horner.	Ulupalakua, Maui.	Waterhouse Tr. Co.
Waiohinu Agricultural Co.	Stock.	S. Kauhane.	Hamakua, Hawaii.	
			Kau, Hawaii.	Irwin & Co.

THE SANDALWOOD TRADE OF EARLY HAWAII

As Told by the Pioneer Traders, Voyagers and Others.

Compiled by Thos. G. Thrum.

MUCH enquiry has arisen within the past few years relative to the early sandal-wood trade of Hawaii in its early commercial history, with the general expression of regret that it was prosecuted with such vigor, by the King and high chiefs, as to practically exterminate the tree from the islands before they placed a tabu on further cutting. This interest is partly the result of an official examination of our forest conditions, inaugurated by the Federal authorities, which has led to the securing of an expert forester by the Commissioners of Agriculture and Forestry, and partly the natural outcome of enquiry in "diversified industry" lines.

While it is now too late to procure certain data to correctly show the rise and annual progress of this trade during its existence, there is, nevertheless, much testimony available, which furnishes a large insight into the methods of sandal-wood collection; names of several parties and vessels engaged in the enterprise; value of yearly exports and the time of its origin and party credited therewith, so that fair conclusions may be drawn toward a clear history of the early sandal-wood trade between these islands and China.

Fortunately a number of the early voyagers and travelers placed on record their observations on this subject, and while much is vague and full of generalities, it is remarkable to find the number of writers that have dealt with it, and the amount of valuable and interesting information they have transmitted to us.

In the preparation of this paper the following authorities, etc., have been gleaned, viz.:—Meares, Portlock, Dixon, Vancouver, Turnbull, Cleveland, Campbell, Corney, Delano, Adams' MS.

Journal, Mathison, Hunnewell's Reminiscences in The Friend, Arago, Alexander, Bingham, Dibble, Ellis, Jarves, Reynold's MS. Journal, Beechey, Bennett, Bloxam, Kotzebue, Paulding, Simpson, Greenhow, Hawaiian Spectator, Sandwich Islands Gazette, Belcher, Stewart, Wilkes, Seeman, Wyllie's Notes, Hawaiian Historical Society Papers, most of which furnish interesting extracts. Search correspondence with parties in Canton, Boston and London, have failed to elicit particulars on several points sought.

These sources clearly show the discovery of the sandal-wood trade of these islands to have been closely identified with the Northwest fur trade in its origin and development, and to have been a natural outgrowth therefrom.

PIONEER TRADERS, ENGLISH.

Meares¹ furnishes an account of the time and origin of the North-west trading expeditions in which it is shown that the pioneer trading venturer was Captain James Hanna, who made a voyage in 1785, and another in 1786, from China, but it is nowhere stated that he touched here. Portlock, and Dixon, from England, and La Perouse from France, came out also in 1785, and were the first (vessels) to visit the islands after Cook, the published account of whose voyage was awakening a rival spirit of discovery and commercial enterprise in England, India, China, France and Russia, so that four expeditions from various points were fitted out, unknown to each other.

Meares' first voyage in the *Nootka*, of 200 tons, accompanied by the *Sea Otter*, of 100 tons, under Wm. Tapping, left India for the Northwest coast in 1786, the *Nootka* spending a month at these islands on the return voyage to China, in 1787, and taking with him, from Kauai, the famous Chief Kaiana. Captain Barclay,* in the *Imperial Eagle*, from England, visited the islands the same year and took away "Wynee," a native girl. Meares' second voyage, in the *Felice*, of 230 tons, accompanied by the

¹Voyages by John Meares, Esq.; Oto., London, 1790.

*Captain Barclay's wife accompanied him on his long voyage, and is the first white woman of record who visited these islands.

Iphigenia, of 200 tons, under Captain Douglas, took Kaiana, "Wynee" and two Maui natives that had been conveyed to China, to return them to their island home, but death claimed all of them on the voyage save the chief. No mention is made of other traders up to this time, although the number of Hawaiians in Canton, mentioned by Meares as being cared for by the "Merchants' Company," indicates that there were, or had been, others. Colnett is credited with arrival at the islands in the *Prince of Wales*, on his trip to China from the Northwest coast, in 1787, and later in the *Argonaut* in 1791. In August, 1788, the *Princess Royal*, of 50 tons, under Captain Duncan, 20 months from England, was at Port Cox. She sailed shortly afterwards for the Sandwich Islands for refreshments, in order to return to China with her valuable cargo of furs.²

Entire silence prevails on the subject of our search by the several traders above mentioned, nor is anything found thereon until the discovery voyage of Vancouver, where, on his first visit to the islands he records, March, 1792, meeting three men on Kauai that had been left by Captain Kendrick, of the American brig *Lady Washington*, some six months previous, for the purpose of collecting sandal-wood and pearls. This brings us to the

ADVENT OF AMERICAN TRADERS.

Up to this point the trading vessels touching at these islands were the English fur-traders of the North-west coast almost exclusively, some touching for refreshments on their way to China, and at least two passing through the winter season among the group, and returning to the Sound fur-trading stations in the spring. The journals of none mention the object of call other than for refreshments, though one,³ some years later, records the scarcity and high price of salt at the several points touched at, with which to serve them in the curing of furs obtained on the coast. In all probability salt was the first article of export trade of the islands and an object, if not the object, of these pioneer fur-traders' call.

It was not until 1787 that the pioneers of American trade and

²Meares' Voyages.

discovery in the Pacific set out for the Northwest coast, in the departure from Boston, September 30, of the ship *Columbia*, of 220 tons, under Captain John Kendrick, with the sloop *Lady Washington*, of 90 tons, as traders, under Captain Robt. Gray.⁴ These pioneer vessels and subsequent discoverers of the Columbia River arrived in the Sound September 17, 1788, and spent over twelve months in trading and surveying the coast before the *Columbia*, fur-laden with the results of both vessels' trade, sailed for China and home under Gray's command, while Kendrick remained in charge of the *Lady Washington* to continue trading and to follow later. It is not shown that the *Columbia* touched at these islands on the way west, though it is very likely, for, following her return to Boston, August 10, 1790, three vessels were fitted out from that port and one from New York, for the Northwest trade. Of the Boston vessels, the brig *Hope*, of 70 tons, was placed under command of Ingraham, formerly mate of the *Columbia*, and he touched first at the islands on the outward voyage, arriving May 20, 1791, and leaving again June 1 for the Sound. No mention is made of his further touching at, or trading with, the islands, though some writers credit him with the leaving of men to collect sandal-wood, though no such claim is presented from his MS. journal.

The second American trading venture to the North Pacific was that of Captain Metcalf, who sailed from New York in 1788 in the snow *Eleanore*, for Canton, where he purchased a small vessel of 26 tons which he named the *Fair American*, and placed her under command of his son, a youth of eighteen.⁵ These vessels arrived at Nootka in November, 1789, and left for these islands a couple of months later; becoming separated en route the former reached Maui, January 30, 1790, and the latter anchored off Kawaihae, February 5th. The massacre of natives off Olowalu, Maui, by the elder Metcalf, and the capture by the natives of Hawaii of the *Fair American* and the murder of her captain and entire crew, save one, makes a dark blot to

⁴Turnbull's Voyage 1800-1804; qto., London, 1813. 2nd Edn.

⁵Greenhow's Hist. of Oregon and Cala.; 3rd Edn. 1846.

⁶Greenhow's History.

herald the arrival of the first American vessels at these islands, for the *Washington*, or *Lady Washington*, as she is termed by various writers, under Captain Jno. Kendrick, and generally credited as the pioneer American trader in Hawaii—as he was on the Northwest coast—is first mentioned at these islands in October, 1791, by Vancouver, as already stated, and defines the time and origin of the sandal-wood export trade, which entitles him to recognition as the pioneer in this enterprise, as the following free extracts⁶ show:

“Young Rowbottom of Derbyshire, England; Jno. Williams, a Welshman, and Jas. Coleman, an Irishman, had been left at Niihau in order that they might return to this island (Kauai,) for the purpose of collecting sandal-wood and pearls for their master, John Kendrick, an American, commanding the brig *Lady Washington*, in whose service they still remained at the wages of eight dollars per month.

“The *Lady Washington* had left the preceding October, (1791), bound to New England with a cargo of furs to dispose of in her way hither at China; she was to immediately return from Boston, and having spent the next winter in Northwest America, was, in the autumn of the ensuing year, to call for these men at Kauai, and take in a cargo of sandal-wood for the India market, with such pearls as they might have collected.

“Previously to the departure of Rowbottom and Williams, they informed me that their captain had conceived a valuable branch of commerce might be created by the importation of the sandal-wood of this country into India, where it sells at an exorbitant price; that, in the fur trade immense profits had been gained, in-somuch that it was expected not less than twenty vessels would, on these pursuits, sail with their captain (Kendrick) from New England, and that they were desired to engage the natives to provide several cargoes of the wood, which is easily procured, as the mountains of Kauai, as well as those of Hawaii, abound with the trees from which it is produced, though we were not able to procure any of their leaves, to determine its particular class or species. The wood seemed but slightly to answer the descrip-

⁶Voyage of Discovery to the North Pacific, by Capt. Geo. Vancouver, 1790-95, 6 vols., London, 1801.

tion given of the yellow sandal-wood of India, which is there a very valuable commodity, and is sold by weight." * * *

The fact that Kendrick's men were not left on Kauai while the vessel was there, but put on shore at Niihau to make their way back and gather a cargo against his return the following year, would indicate that the discovery of true sandal-wood was accidental; the knowledge of its presence in the islands very likely coming to Captain Kendrick in the purchase of firewood, and knowing its desirability in the China market, his leaving men to collect for a cargo the following year was an after-thought for future possibilities.

Greenhow mentions that Kendrick arrived at Macao while the *Hope* (Ingraham's vessel,) was lying there. This confirms Kendrick as being third in order of arrival here of American traders, yet it was apparently reserved for him to discover and open up a most lucrative export trade between these islands and China.

In the absence of particulars at this period we are left to infer that he returned in the *Washington* and devoted himself exclusively to this enterprise, for the same historian mentions that "neither Kendrick nor his vessel ever returned to America, as he was killed in 1793, at Kealakekua Bay, Hawaii, by a ball accidentally fired from a British vessel, while saluting him."⁷ This latter statement is erroneous, as both Jarves and Alexander show that Kendrick was killed in Honolulu harbor, December 13, 1794, as he was sitting at dinner in his cabin, by a wad from a gun fired by Captain Brown of the *Jackal*, who was celebrating a victory gained the day before over Kaeo.

EARLY DEVELOPMENT OF THE TRADE UNKNOWN.

It would be interesting could we know the particulars of the early development of the sandal-wood trade which was destined to form so prominent a part in the history of the islands, but comparatively little is found thereon for the first decade of its existence.

It is evident, however, that rivalry for participation in its benefits was experienced, and the trade sustained a serious setback in consequence of shipments of spurious wood to the China market,

⁷Greenhow's Hist. of Oregon, Etc.

SANDAL-WOOD TRADE.

for one writer⁸ mentions seeing "as long ago as 1790, more than thirty tons of what was called sandal-wood brought from these islands to Canton in one vessel, but it was of an inferior kind and the Chinese would not give anything for it. In consequence of this and similar circumstances it is probable that the real sandal-wood was so long neglected by those who visited the islands. They entertained an idea that all the wood that grew there was the same as that which was first transported to China."

If this statement is correct, it is important as indicating a knowledge that prevailed of a possibility in this direction, and that efforts toward the opening of this trade were made by the fur-trade visitors prior to Kendrick's arrival, whose first shipment could not have occurred earlier than the summer of 1792, and having to overcome bad "first impressions" in his market would account for its slow establishment and scant recognition by the early writers.

Delano last visited the islands in the *Perseverance* toward the close of 1806. His observations were not published till 1817. He states, referring doubtless to the time of his visit in 1801, "there has been found growing at these islands within the past seven or eight years a considerable quantity of sandal-wood, and some American gentlemen have made large profits by the traffic. There has been a company in this business for several years, Captains Wm. H. Davis and Jona. Winship, of Boston, together with several others, some of whom make it a place of business while others transport the wood to Canton."

Turnbull in his visit, in 1802, but briefly mentions the fact that "the Sandwich Islanders possess the sandal-wood, pearl-shell oyster and some pearls, all articles of high value in the China market," and Alex. Campbell, for his thirteen months' residence at the islands, 1809-10⁹, gives almost the same paragraph, nothing more, though this must have been a period of activity in the prosecution of the trade throughout the islands, for Cleveland, in 1804, mentions that the *Lelia Byrd*, which had arrived in a damaged condition, and was repaired by the King, made two or three voyages to China with sandal-wood.

⁸Voyages and Travels, etc., by Amasa Delano, Boston, 1817.

⁹Voyage Round the World, 1806 to 1812, by Alex. Cam

Jarves, the historian, referring to Kendrick's leaving men on Kauai "to contract for several cargoes of sandal-wood," says,¹⁰ "but it was not until many years afterward that it was made an important branch of trade." A little further on he states that "in the early part of 1816 * * sandal-wood had now become the great article of export."

Our own historian, Alexander, among various paragraphs touching on this subject, makes mention of Captain Jona. Winship, a well-known sandal-wood trader in 1810, and says:¹¹ "It was during the period from 1810 to 1825 that the sandal-wood trade was at its height. This wood was in great demand for the Canton market, where it was sold for incense and for the manufacture of fancy articles. It was purchased by the picul of 133½ pounds, the price varying from eight to ten dollars for the picul."

Kotzebue in his visits here in 1816 and in 1817, gives its status as follows:¹² "In the harbor lay three ships, two of which, one large three-master and a pretty brig, belonged to the King, who had purchased them for sandal. The three-master, *Albatross*, serves for the present as a transport to carry provisions from Oahu to Hawaii, but will in future go to Canton with sandal under Tameamea's flag, to barter it for Chinese goods. * * *

"On the 8th (Oct., 1817) the captain of an American schooner struck a bargain with Kareimoku about a cargo of sandal for which he gave him a ship lined with copper; a circumstance which shows how dearly the Americans sell this wood in China. Several ships that lay here, paid for this wood with goods or piasters, which is delivered to them by weight in the Governor's presence." * * *

And in his subsequent visit in 1825 he notes further, as follows: "Salt and sandal-wood were the chief articles of exportation.

¹⁰History of the Hawaiian or Sandwich Islands, by Jas. Jackson Jarves, 1843.

¹¹Brief History of the Hawaiian People, by W. D. Alexander, 1891.

¹²Voyage of Discovery in the South Sea, etc., 1815 to 1818, by Otto von Kotzebue, London, 1821.

SANDAL-WOOD TRADE.

The latter, though bought at rather a high price by the North American ships, which almost exclusively monopolized this trade, sold for a large profit at Canton. * * *

"I have been told that the Americans have purchased sandal-wood here to the amount of three hundred thousand Spanish dollars a year. Kamehameha bartered this wood for some large American merchant ships, manned them and other ships built in the Sandwich Islands, partly with his own subjects and partly with Europeans, and traded on his own account." * * *

From Captain Alex. Adams' log book of the brig *Kaahumanu*, we are permitted to make the following extracts relating to the celebrated sandal-wood venture of Kamehameha to Canton, in 1817:

"On Sunday, February 23rd, got under way and stood out of the harbor (of Honolulu); saluted the fort with nine guns which was returned by an equal number, bound to Waimea (Oahu), for sandal-wood to Canton. Governor Cox (Keeaumoku 2nd) and lady accompanied us to see the brig loaded.

"26th.—Anchored at Waimea in nine fathoms water. From this to March 2nd, variously employed. At 11 a. m. got under way for Waianae. 4th—Light variable winds; came to anchor in Waianae in 16 fathoms water. * * * Employed in getting ready for sea.

"7th.—All the cargo on board. 8th and 9th fresh gales and cloudy. At 4 p. m. got under way for Kauai; arrived off the island and delivered our orders to the King from Kamehameha. * * * Sailed for Macao March 13, 1817, and arrived there April 25th, anchoring in the Tiper in four fathoms. * * * On 27th.—Had orders from the merchant to hoist no colors till further instructions." * * *

No entry is found of the quantity of sandal-wood which comprised the cargo, or the amount realized thereon, but the result was a great disappointment, for the voyage is said to have brought the royal shipper in debt through heavy port charges, commission merchants' manipulations, and other excesses; the vessel returning with only a partial cargo of China goods and liquor.

This experience led Kamehameha to establish pilot and port charge revenue for his realm.

There are occasional references to other sandal-wood shipments by the King, but they were not in vessels flying an unknown flag, nor entrusted to persons inexperienced in the China trade, though the *Ainoa*, a little later, took a cargo on chief's account. Captain Winship, in the *Albatross*, is believed to have been one of those held in high esteem by the King and high chiefs who was entrusted with consignments on their account. Alexander's history makes mention of a cargo sent by him in December, 1811, who brought back Chinese goods the following year, in return, soon after which there was a famine in Hawaii, "caused by the neglect of agriculture while the people had been forced to spend their time in cutting sandal-wood. Kamehameha set his retinue at work in planting the ground. * * * As an illustration of his foresight it is said that he forbade the cutting of young sandal-wood."

An instance of this foresight is shown in the following incident mentioned in Dibble's History.¹³

"When the men were collecting sandal-wood, they cut the young sticks and brought them to the shore, which when Kamehameha perceived, he enquired: 'Why do you bring this small wood hither?' They replied: 'You are an old man and will soon die and we know not whose will be this sandal-wood hereafter.' Kamehameha replied: 'Is it indeed that you do not know, my sons! To them the young sandal-wood belongs.'"

The frequent reference about this time to the purchase of vessels by the King and chiefs, is an indication of the intense activity that must have prevailed throughout the islands, for the possession of vessels by those in power, chiefs and chiefesses, became a mania with them and fabulous prices in many cases were paid.

In a recent paper of the Historical Society¹⁴ the author instances several extravagant purchases of vessels and goods whereby the government was, in due time, floundering hopelessly in debt.

¹³History and General Views of Sandwich Is. Mission, by Rev. Sheldon Dibble, New York, 1839.

¹⁴Early Trading in Hawaii, by W. D. Alexander.

"March, 1819, Kamehameha purchased of Wm. French 16 kegs of rum valued at \$400, a box of tea, together with \$8,000 worth of guns and ammunition for which he gave 850 piculs of sandal-wood at \$10 a picul.

"Kalanimoku purchased in March over \$1,200 worth of cloth, paying for it with hogs and sandal-wood, and in August he bought the brig '*Neo*' and appurtenances for the exorbitant price of \$51,750, paying down \$44,470 in sandal-wood and giving his note for the balance.

"May (1819) Liholiho purchased 34 casks gunpowder, 80 muskets at \$15, with a quantity of bullets, flints, etc., and the new sloop '*Kirouea*,' valued at \$4,160, for which he gave in payment 416 piculs of sandal-wood, four hogs and his note for the balance.

"An important account is that of Governor Boki in his final settlement for the debts of all the chiefs showing that the King and chiefs parted with over \$61,600 worth of sandal-wood, besides many hogs, and gave three joint notes amounting to \$24,310, payable in sandal-wood." * * * Other like purchases elsewhere reported are as follows:

"1816—John Ebbets sold the ship *Albatross*, of 165 tons, to Kamehameha for 400 piculs sandal-wood.

"1817—Brig *Bordeaux Packet*, 160 tons, sold for sandal-wood, quantity not stated.

"1820—Liholiho purchased from Captain Suter a beautiful yacht called *Cleopatra's Barge*, built in Salem, Mass., for \$90,000, to be paid for in sandal-wood."

CORNEY'S OBSERVATIONS.

Corney, in the *Columbia*, records the following:¹⁵ "December 24, 1817, after a careful inspection of the schooner, (of 185 tons) and her battery, on behalf of Kamehameha on approval of John Young, Kalaimoku agreed to give twice the full of the vessel of sandal-wood for her, to be delivered in six months' time, and that we should hold possession of the vessel till delivered."

¹⁵Early Northern Pacific Voyages, from 1813 to 1818, by Peter Corney, Honolulu, 1896.

Under date of May, 1818, he notes the purchase by Kamehameha of the "Patriot ship *Santa Rosa*" and cargo, for 6,000 piculs sandal-wood.

The same writer furnishes the first account of sandal-wood collecting, as follows:

"We lay in the harbor until March 17, 1818, when we received orders from Kamehameha to proceed to the Island of Kauai for a cargo of sandal-wood. Keeaumoku, or Cox, with several chiefs came on board. We made sail the following day and came to in Waimea roads. * * * Our chiefs landed and were well received by Kaumualii; the next morning they commenced sending wood on board. About 500 canoes were employed in bringing it off, and by the 25th we had the ship quite full. * * * We weighed and made sail for Oahu where we anchored the next day, landed our wood and lay until April 19th, when we took on board a cargo of salt for the west end of Oahu. Next day we sailed for Waimea bay on the west end of the island to get another cargo of wood, * * * where we arrived on the 22nd and took on board a full load in thirty-six hours; more than 200 canoes were employed in bringing it off, day and night. Made sail for Honolulu where we arrived on the 28th and sent the wood on shore. On May 1st we had all our wood on shore and stored, and the following day we hauled down the English colors and hoisted the island colors, saluting them with seven guns and gave the ship up to Kalaimoku."

HUNNEWELL'S OBSERVATIONS.

In Hunnewell's Honolulu in 1817-18,¹⁶ are various brief paragraphs pertaining to the trading for and collection of sandal-wood, as shown in the following: "Brig *Bordeaux Packet* was sold on the 17th of September, 1817. Sailed for Waimea, Oahu, and commenced taking in sandal-wood on 23rd. October 4th left for Waianae; took in a little wood and returned to Honolulu on 7th. Our cargo of wood was shipped on the *Alert*, for Canton. October 26th sailed for Waialua to load wood and arrived back November 1st with a full cargo. Shipped same per *Zephyr*

¹⁶Hawaiian Hist. Soc. Papers No. 8.

to Canton, and sailed again on 16th for Waimea for the remainder of our wood. Met heavy weather but obtained the wood, which was sent to Canton by the *Alta*.

"Having received pay in full the vessel, with her papers, were delivered up to Kalaimoku, who named it after himself. The ceremony was done by firing a salute and lowering the American colors and hoisting those of the Sandwich Islands."

In his "Reminiscences"¹⁷ he gives further insight into the ship trading and collecting methods of the time, 1817 to 1822:

"In 1817 returned with the brig *Packet* to Honolulu and visited Kamehameha at Hawaii, and after various negotiations our brig was sold and paid for in sandal-wood, which required several trips around Oahu, the wood being nearly all shipped on ships at Honolulu. Her captain embarked for China, leaving Mr. Dorr, my fellow officer, and myself, to dispose of balance of our California cargo and ship the proceed (sandal-wood) to China. All trade was in barter, as there was no money among the natives. This detained us until September, 1818, when I embarked in the ship *Osprey*, and Mr. Dorr in the ship *Enterprise*, to China, with our sandal-wood. * * *

"My second voyage was in the brig *Thaddeus* on a voyage to the Northwest coast. * * * Arrived at Honolulu in April, 1820, and landed material for building a schooner and some merchandise for trade. I remained to do the trading and a Mr. Spear to superintend the building of the schooner *Puhalaui*. * * * The *Thaddeus* returned in the autumn; negotiated with the island government for the sale of both brig and schooner to be paid for in sandal-wood, 8,000 piculs. Captain Blanchard left me in 1821 to collect the proceeds of sale and ship it to China, the government agreeing to pay * * * before any other debts contracted after our sale. They did not comply with their part of the agreement, and by fall 1822 they had paid but about 1,700 piculs, and this arrived in China to be burned in the great Canton fire in November. By fall of 1823, I had collected but a small part of balance due. This was also sent to China. By fall of 1824 reduced the balance to 800 piculs when I left with what had been collected for China." * * *

¹⁷The Friend, Honolulu, January, 1867.

MATHISON'S OBSERVATIONS.

In Mathison's¹⁸ account of his visit to these islands, in 1822, a better insight into the manner and customs of sandal-wood collecting and value of the trade is found than in any other source, and I therefore make the following liberal extracts:

"July 10, (1822) * * * I accepted an offer made me by the captain of a small schooner belonging to Mr. Jones' establishment, which was engaged in bringing sandal-wood from other parts of the coast, and sailed with him this evening in company with the American ship *Tartar*.

"Having enjoyed a most agreeable sail by moonlight, we this morning (11th) entered a small bay called Waialua, on the northeast side of the island. * * * Here a chief named Coxé (Keeaumoku), who is one of the richest and most powerful in the island resides; and as he was the person from whom our captain was to obtain the sandal-wood, our first visit was of course paid to him. * * *

"Being desirous of walking to that part of the country where the sandal-wood is cut * * * I obtained a guide and started, July 13, in the company of an American fellow passenger. * * * On our return we found Coxé in high good humor busily employed in weighing sandal-wood on the beach, and shipping it on board the two vessels which lay in the roadstead. At a little distance from his own hut was a large store-house, not less than fifty feet in length by thirty in breadth, and about thirty feet high, where the sandal-wood was piled up and kept ready for embarkation; work people of both sexes and all ages were employed in carrying it down to the beach. The chief and his attendants directed their operations, and one confidential man, whose duty it was to see fair play, stood over the weighing machine, with the American captain for whose ship the freight was destined.

"Coxé * * * is said to be worth twenty or thirty thousand dollars, and derives an increasing yearly income from the sale

¹⁸Narrative of a Visit to Brazil, Chili, Peru and the Sand. Is. by Gilbert Farquhar Mathison; London, 1825.

of sandal-wood which grows upon his land. * * * Returned July 20, to Honolulu.

"When a tenant refuses to obey the order of his chief, the most severe and summary punishment is inflicted on him, namely, the confiscation of his property. An instance occurred while I was at Waialua. Coxe had given orders to some hundreds of his people to repair to the woods by an appointed day to cut sandal-wood. The whole obeyed except one man, who had the folly and hardihood to refuse. Upon this, his house was set fire to and burnt to the ground on the very day; still he refused to go. The next process was to seize his possessions, and turn his wife and family off the estate, which would have been done had he not made a timely submission. It has been said that no compensation is made to the laborers for their work, except a small grant of land. This, however, does not prevent the chief, if kindly disposed, from distributing supplies gratuitously among them. Kalaimoku is said to have once distributed no less than 300 blankets among his people. * * *

"Sandal-wood, with which these islands abound, is the great article of foreign trade. The Americans are the only carriers, and Canton is the only market for it. It is difficult to ascertain the extent of exportation of this article, though it must evidently be considerable, for several coasting vessels are constantly employed in bringing it to the port from distant parts, and the American merchants are known to have made large profits by it. I have, however, been informed, that during the last eighteen months from 35,000 to 40,000 piculs of sandal-wood had been sent to Canton, which, at the rate of ten dollars per picul, the usual price, brings into the hands of the King and trading chiefs a clear receipt of 350,000 to 400,000 dollars, paid in goods bearing that nominal value. I say a clear receipt for the expenses of cutting and shipping it are absolutely nothing. * * *

"Sandal-wood must be considered, at present, as the only production of these islands fit for foreign trade, but it is not likely to become exhausted for a considerable time to come; large forests of it still remain untouched, particularly at Hawaii. The quality of it is said to be inferior to that grown in India, and the market

price proportionately less; at Canton the price is now only eight dollars per picul. It is brought from the woods in logs three or four feet long, and from two to seven or eight inches in diameter. There being no carriages on the island, these logs are carried down to the sea-side on the heads and shoulders of men, women and children, and lodged in large storehouses to be ready for shipment. The wood in its green state has little or no aromatic smell, but when it becomes dry the odor sensibly impregnates the whole surrounding atmosphere.

"For conveying their sandal-wood from distant parts of Oahu and the other islands to the port of Honolulu, about twelve small brigs and schooners are now employed in place of the large canoes formerly in use for this and other purposes.

"August 10.—On the afternoon of this day, having taken in all our freight of sandal-wood, we finally left Oahu in company with the American ship *Houqua*, for Canton." * * *

Arago, in "*Voyage of the Uranie*," has the following paragraph on the subject of its collection:¹⁹

"Some strong and active men are sent to the mountains; the forests are examined and some sandal-wood trees are cut down; these are conveyed to the water's edge at night by about twenty women, who are paid for either carrying or dragging them along, with a few ells of European cloth or linen; thence to be embarked on board a vessel that is always stationed in the harbor."

OBSERVATIONS BY ELLIS.

Rev. Wm. Ellis follows Mathison in point of time, and, like him, throws much interesting light on the subject. The intenseness with which the trade was prosecuted is also clearly shown. The author set out from Kailua in a small party, on a missionary tour of observation, afoot, with a guide and attendants furnished by Governor Kuakini; the route being through Kona to Kau, to Puna, Hilo, Hamakua and Kohala. This afforded an exceptional opportunity to obtain an insight into the

¹⁹Voyage round the world in the *Uranie* and *Physicienne* com'd by Capt. Freycinet, 1817-1820, by J. Arago; 2 vols., London, 1853.

manners and customs of the people and the faithful record has long held place as a text book of Hawaii.²⁰

Of Honolulu, at the time of his writing, 1823, he says:

"There are twelve or fourteen merchants, principally Americans, who have established warehouses on shore for foreign goods, principally piece goods, hardware, crockery, hats and shoes, naval stores, etc., which they retail to natives for Spanish dollars or sandal-wood."

Mr. Ellis took passage in a small vessel belonging to Keopuolani, bound first to Lahaina, and then to Hawaii for sandal-wood. At one point he says: "When the King's servants went for sandal-wood, which was not very often, they were gone three or four days, and sometimes as many weeks." He mentions also a use to which sandal-wood was put by the natives that may not be generally known, viz:—that "in the manufacture of the kapa pau, those painted red, or yellow, etc., are sometimes rubbed over with a vegetable oil, in which chips of sandal-wood, or the seeds of the pandanus odorotissima, have been steeped. This is designed to perfume the cloth and render it impervious to wet." Traveling through Kona a number of "vaulted avenues, lava caverns or tunnels" were seen, "used as store-houses or depositories of sandal-wood."

In passing through Olaa the first wood-cutting expedition was encountered, which is described with much detail, as follows:

"During the journey we overtook Maalo, the chief of Waiakea, and three or four hundred people, returning with sandal-wood, which they had been cutting in the mountains. Each man carried two or three pieces, from four to six feet long, and about three inches in diameter. The bark and sap had been chipped off with small adzes, and the wood appeared lighter in color than what is usually sold at Oahu, probably from its having been but recently cut down.

"The sandal-wood is the same as in the East Indies, and is probably the *santalum album*. It is a tolerably heavy and solid wood, and after the sap, or part next the bark, is taken off, is of a light yellow or brown color, containing a quantity of aro-

²⁰Tour Through Hawaii, Wm. Ellis, London, 1826.

matic oil. Although a plant of slow growth, it is found in abundance in all the mountainous parts of the Sandwich Islands, and is cut in great quantities by the natives, as it constitutes their principal article of exportation. It is brought down to the beach in pieces from a foot to eighteen inches in diameter, and six or eight feet long, to small sticks not more than an inch thick and a foot and a half long. It is sold by weight, and the merchants exchange for it articles of European or Chinese manufacture." * * *

At Waipio and Waimanu valleys other parties are encountered:

"During the afternoon great numbers of men belonging to the valley (of Waipio) returned with loads of sandal-wood, which they had been cutting in the neighboring mountains. The wood was much superior to that which we had seen at Waiakea, being high colored, strongly scented, and sometimes in large pieces nearly a foot in diameter. * * *

"We found Alapai, the chief, and a number of his men, busy on the beach shipping sandal-wood on board a sloop belonging to the governor, then lying at anchor in a small bay off the mouth of the valley." * * *

The Kohala experiences prove a suggestive climax:

"Before daylight * * * we were roused by vast multitudes of people passing through the district from Waimea with sandal-wood, which had been cut in the adjacent mountains for Kalaimoku by the people of Waimea, and which the people of Kohala, as far as the north point, had been ordered to bring down to his storehouse on the beach, for the purpose of its being shipped to Oahu. There were between two and three thousand men, carrying each from one to six pieces of sandal-wood, according to size and weight. It was generally tied on their backs by bands made of ti leaves, passed over the shoulders and under the arms, and fastened across the breast. When they deposited the wood at the storehouse, they departed to their respective homes. * * *

"Though we numbered in our journey today, 600 houses, we had not seen anything like 400 people, almost the whole population being employed in the mountains cutting sandal-wood."

NATIONAL DEBT DIFFICULTIES.

Bloxam in the *Blonde*,²¹ in 1825, is the next recording visitor, but nothing new among the paragraphs touching on this subject is found. He in turn is succeeded by Lieut. Paulding in the U. S. schooner *Dolphin*, the first American war vessel that ever entered a port of the Sandwich Islands, anchoring at "Onavoor" (Honolulu), January 16, 1826. His notes touching this subject matter are both brief and important, as both the scarcity of the wood and the alarm of national debt difficulties are sounded. I quote as follows:²²

* * * "Captain Jackson of the brig *Harbinger*, of Boston, had a store in Honolulu from which considerable goods were stolen. The guilty parties were apprehended and on trial before the chief (Kalaimoku) the matter was compromised by promising to have a quantity of sandal-wood collected within a prescribed period for him.

"The sandal-wood has become scarce upon the islands from the large quantities formerly taken away by our traders, and does not now form a very lucrative or extensive article of commerce. Upon this article some of our merchants are said to New York, 1831.

have made large sums of money in exchange for whole cargoes of goods, with the chiefs. * * * Kamehameha and his successor have entailed upon their descendants a national debt of several hundred thousand dollars now due to our merchants, which they will not soon be able to liquidate."

On this subject the following extract²³ shows the situation as having adjustment. Captain Thos. Ap. Catesby Jones, in the U. S. S. *Peacock*, arrived in October, 1826, having among other duties, "to secure certain debts due to American citizens by the native government. No schedule of these claims has ever been published, but they were estimated by Captain Jones, after material reductions, at \$500,000."

²¹Voyage of the *Blonde* to the Sandwich Is., London, 1826.

²²Journal of Cruise of U. S. Schr. *Dolphin*, by Lieut. Hiram Paulding;

²³Alexander's Brief History, etc.

Reference to this claim, with a copy of the resolutions adopted by the authorities for its settlement, dated December 27, 1826, with comment on the remarkable prompt payment thereunder was made in an official report to the Hawaiian legislature of 1855.²⁴

Among other articles of said resolution, "Every man was required to deliver half a picul of good sandal-wood to the governor of the district to which he belongs, or in lieu thereof four Spanish dollars, on or before September 1, 1827. No person except the infirm, or of too advanced age would be exempted. Every woman of the age of thirteen years or upwards was to pay a mat twelve feet long by six wide, or tapa of its equal value, or one Spanish dollar. * * * Every man who shall proceed to the mountains for sandal-wood shall be at liberty to cut one picul and on delivering one half to the person appointed to receive it, may sell the other half on his own account to whomsoever he may think proper." * * *

This edict was signed on behalf of the King by Kaahumanu, Queen Regent; Karaimoku, Prime Minister; Boki, Hoapili, and Lidia Namahana.

The report above referred to reflected somewhat upon Captain Jones' action in the matter, and resulted in a series of inquiries and an investigation which were fully presented in a supplementary report the following year,²⁵ in which Mr. Wyllie, with his Scotch love of truth, repaired the unjust reflections.

In the replies to the series of questions by Mr. Wyllie, of Captain John Meek, Governor Kekuanaoa, John Ii and Kanaina, the only remaining parties living who were present at the convention of Captain Jones with the chiefs, further light on the sandal-wood trade is adduced.

"The principal claimants were Wm. Denny, Captains Eb-bets, Andrew, Blanchard, Wildes, Brown, Thos. Meek, Wm. French and Jno. Coffin Jones, the consul, and his partners. Respecting the amount of the claims presented impressions varied from \$100,000 to 90,000 piculs, more or less, of sandal-wood. The

²⁴Supplement to Report of Minister of Foreign Relations, 1856, pp. 6-30.

²⁵Report of the Minister of Foreign Relations, 1855, pp. 2-4.

price then was \$10 per picul. The greatest part of the debt was for vessels sold and goods furnished; they were old debts. Chiefs had been in the habit of buying, desiring everything new but thinking little of the price, as they had to pay in sandal-wood. Americans were so anxious to get wood that they gave credit; almost forcing goods upon the chiefs and got them into debt to get sandal-wood out of them. Several whole cargoes were sent to China and sold for an immense sum, and all that the chiefs got for that wood were some old uniforms. It was the custom to give three or four months credit but they seldom paid at those periods. They had little money but thought they could pay in sandal-wood which was plentiful. Goods were valued in dollars but paid in sandal-wood.

No proper account was kept of anything paid to the chiefs for the annual revenue of the islands. The sandal-wood belonged to the King; it was collected for him as his own right. The taxes were paid in nets, kapas, feathers, pigs, canoes, fish and provisions of all kinds; no revenue was paid in coin. When the King wanted wood the chiefs and their people cut it for him, taking for themselves six paunas* out of every ten, and leaving four for the King. In the latter part of Kaahumanu's reign she took one half.

The collection of so much wood in so brief a period came heavy on both the chiefs and common people; the latter complained that they had to suffer for the chief's debts. Kanaina said they went to work willingly, because they were paid for their labor proportionately, according to the edict. Its collection consumed all the sandal-wood, and obliged the chiefs to taboo it, that it might grow again. There is some now growing, but very little fit to cut. The chiefs thought it could never be exhausted. When it was all cut then they regretted very much that there was none left. Even the roots in many places were dug up. The wood is of very slow growth; it is now (1856) very scarce; no considerable quantity could be collected except on Hawaii, and there are no roads along which it could be carried.

*Captain Meek designated the *pauna* as equal to two piculs.

DECLINE OF SANDAL-WOOD TRADE.

The next visitor,²⁶ the following year, also notes the decline of the sandal-wood trade, and gives coincident reasons that perhaps have not been generally known. His observations are as follows:

"The discovery of sandal-wood in the mountains opened a profitable channel of commerce, and several adventurers, chiefly from the United States, remained to collect it from the natives. They found a ready market for it in China; the goods of that country were brought in return to these islands, and thus was laid the foundation of a trade which still continues. Tamehameha having purchased several vessels with this precious wood, attempted to conduct this trade on his own resources, and sent a vessel bearing his flag to Canton; but owing to the forms and impositions practiced in China, and other circumstances which he could not control, the speculation failed. * * *

* * * "The treasures accumulated by Tamehameha, and the supply of that precious wood which has been so instrumental in bringing the islands into notice, have been drained to meet the expenses of ruinous purchases which have materially contributed to the apparent show of grandeur and prosperity. * * * The sandal-wood, it is known, requires many years to arrive at a fit state for the market; and its cultivation not having been attended to, the wood is now becoming scarce, while the debt of the nation has considerably increased. During our visit, in order to avoid the expense attending the collection of this wood, it became necessary to levy a tax upon the people of a picul, or 133 pounds each, which they were required to bring from the mountains, under a penalty of four dollars, and to deposit it with the authorities at Honolulu for the purpose of liquidating the debt of the nation. The greater part of the wood brought in was small and crooked, and only fit for the use of the joss houses in China, where it is burned as incense, but the consumption of it there is diminishing in consequence of an order for its disuse in those places of worship. The odor of the sandal-wood of the Sand-

²⁶Narrative of a Voyage to the Pacific, etc., by Capt. F. W. Beckley, 2 vols., London, 1831.

wich Islands is very inferior to that of Malabar, Ceylon and other parts of India.

A MERCHANT'S JOTTINGS.

The next in order of date is the journal of a Honolulu merchant²⁷ from 1826 to 1829, extracts of which, as follows, give us the earliest market transactions available, with the names of several parties then engaged in the trade.

"1826—Nov. 25, received 22 piculs sandal-wood on *Waverly* account. On 29th put 100 piculs on board *Sultan*, for Wm. French.

"1827.—Jan. 6, *Chinchilla* arrived from Kauai with 450 piculs sandal-wood.

"Feb. 28—Boki bought two sets of plated ware for which he gave 160 piculs sandal-wood. (Market price ranged about \$8 per picul.)

"May 28—Weighing sandal-wood; got 65 piculs good wood. Thompson and Hunnewell also weighing. Boki preparing to go to Waialua; said he would give the wood for the debt as fast as we could find vessels to take it away.

"July 5—Br. ship *Tinemouth*, from Canton, discharging; Boki, the King and party on board the entire day. Report says they bought the cargo and are to pay sandal-wood therefor immediately. Ship proceeds direct to Canton and will return as speedily as possible. I am afraid we shall never get any more pay for old debts.

"July 12—Called on the King about wood; said he would enquire. It appears Boki had given orders to Manuia to use the King's wood, so I had to go without.

"July 18—Brig *Kamilolani* came in with about 750 piculs sandal-wood on board of tax wood to pay old debts, to be divided into four parts; one to Jones, agent for Marshall & Wildes; one to Manini, agent for T. Meek and Captain Ebbets; Hunnewell, agent for Bryant & Sturgis and brig *Thaddeus*, and self for *Waverly* and W. G. Dana.

²⁷Honolulu in Primitive Days, Hawaiian Annual for 1901, p. 74.

"July 19—The wood landing from the *Kamilolani* is being stored in Hunnewell's storehouse.

"July 26—Brig *Owyhee*, Dominis, arrived from San Francisco, with merchandise and horses for several parties. Horse fever raged high; every person who could muster sandal-wood wanted to buy.

"1828—May 19, Mr. Carlton went to Koolau to weigh sandal-wood.

"June 27—Finished putting sandal-wood on board the *Tartar*; 2,200 piculs.

"Nov. 18—Boki offered 2,400 piculs sandal-wood for brig *Active*, pay down.

"1829—Jan. 15, orders issued for all Boki's men, and the King's, to go to windward to cut sandal-wood.

"Feb. 20—*Chinchilla* arrived from Hawaii with 200 piculs sandal-wood, part tax and part purchase."

BOKI'S ILL-FATED EXPEDITION.

Owing to pressure for settlement of government obligations and to retrieve waning fortune, Boki, Governor of Oahu, was induced by the report received of the discovery of an island in the South Pacific abounding in sandal-wood, to fit out an expedition in search of it. The man-of-war brig *Kamehameha*, and brig *Becket* were hastily equipped and set sail, December 2, 1829, under command of Boki and Manuia, respectively, with nearly 500 attendants, including ten foreigners. Boki at his departure said: "I am about to undertake a voyage to extinguish the debt of the King."²⁸

The vessels touched at Rotuma, of the New Hebrides group, where Boki pressed many of the inhabitants into his service, then sailed for Eromango. The *Becket* followed ten days later, but nothing was ever afterward seen or heard of Boki, his crew, or vessel. After remaining at Eromango five weeks the *Becket*, its object defeated, set sail and drifted, a floating charnel-house, back to Honolulu, arriving August 3, 1830, with but twenty souls on board.

²⁸—*History of Hawaiian Islands.*

RESTRICTIVE POLICY INAUGURATED.

Reynolds, in his visit in 1832,²⁹ makes but brief mention of sandal-wood, but confirms its growing scarcity, as also the much reduced rate in Canton. To another visitor,³⁰ in 1835, we are indebted for the approximate time of restricting the cutting of young trees; his observations being as follows: "The staple commodities of the group are at present very few. Sandal-wood is the principal of these, but the demands for it have been so urgent, and so much beyond the resources of the country, that nearly all the large trees have been destroyed, and for some time past the government has very prudently prohibited the cutting of young wood."

Confirming this reported restriction on sandal-wood cutting, the first laws passed by the King and chiefs, published June 7, 1839, the section relating to lands, etc., has the following provision:³¹ "The owner of each division of land is allowed to select one kind of wood on that portion of the mountain connected with his land, which wood he may claim as his private property. It also claims for the government two-thirds of all the sandal-wood. Whoever cuts it, has one-third for himself and delivers the other two-thirds to government."

It is likely that the above reservation took place by royal edict, according to ancient custom, much earlier, for it is found embodied among the first printed laws of the country. The translator of the first constitution and laws of the Hawaiian government (our "Blue Book") says: "Some of them were enacted as far back as 1833, and others had their origin as early as 1823."

The above law of 1839 was amended by the legislature the next year, as follows: * * * "His Majesty the King taboos the sandal-wood for himself. The visitors of the mountains shall not touch that timber until such time as the King shall say, when

²⁹Voyage of the U. S. Frigate Potomac, 1831-34, by J. N. Reynolds, New York, 1835.

³⁰Narrative of a Whaling Voyage, etc., by Fred. D. Bennett, 2 vols., London, 1840.

³¹Hawaiian Spectator, Honolulu, 2 vols., 1838-39.

all the people may cut it by paying two-thirds to the King, reserving one-third to themselves. He also taboos all large trees such as one man cannot clasp. * * * Whoever violates the taboo on those trees * * * or breaks down the small shoots of sandal-wood in the mountains, shall be fined one hundred rafters each five yards long. But if the man be furnished with a whip-saw, they are the third class of persons who may cut large trees of the forest, but not the sandal-wood." * * *

Little mention of sandal-wood is found in the file of the first newspaper³² in the English language published here, in 1836, from which it may be inferred that market transactions had practically ceased.

HAWAIIAN VERSION OF ITS HISTORY.³³

"In the seventh year of Kamehameha's residence at Oahu," (1802) "sandal-wood became an article of traffic. Foreigners wishing to buy, informed him that it might be a source of wealth to the people and chiefs. He ordered some of his men, and perhaps some of the chiefs, to go into the mountains of Oahu and search for it. They went and were successful. Finding it a valuable article Kamehameha kept his knowledge to himself and monopolized the trade.

"At the expiration of two years Kamehameha returned to Kona, on Hawaii. This expedition was denominated Kaniaukani; all the inhabitants of Kona went to collect sandal-wood, which the King sold to foreigners, who had sailed with him from Oahu for the purpose of purchasing it.

"After residing four years on Hawaii Kamehameha heard that the Russians had arrived at Oahu, with a view to possess themselves of that island. He dispatched Kalanimoku, Ulumeheihei, Naihe, Kaikioewa, Kaoleioku and Keeaumoku with a multitude of men to go and fight. They sailed, arrived, sent away the foreigners and built a fort at Honolulu* Then Kalanimoku and the chiefs collected sandal-wood and exchanged it for cloth to a

³²The Sandwich Islands Gazette, Honolulu, 1836-9.

³³Hawaiian Spectator, Quarterly, 2 vols., Honolulu, 1837-38.

*The erection of this fort was begun in 1816.

great amount, while Kamehameha was so extensively engaged in the traffic at Hawaii as to purchase a vessel called Kalaholile.

"The sandal-wood enterprise was now past all question lucrative; the King took it into his own hands, prohibiting other chiefs from dealing in it. He dwelt seven years at Hawaii prosecuting this business. He died at Kona, May 8, 1819. His successor, Liholiho, continued the trade in sandal-wood, as has the present King Kamehameha; but it is nearly closed, as that which remains is small and inodorous."

ITS STATUS AT TIME OF WILKES' VISIT.⁸⁴

"Sandal-wood, it is well known, was the first article that brought this people into notice, gave importance to the islands, and tempted foreigners to visit them. The chiefs, finding they had a store of treasure, believed it to be inexhaustible, and were tempted, by their own cupidity and that of their visitors, to cut it without stint. The course of this trade led to all sorts of tyranny and oppression by the chiefs towards their dependants. The trees have been for some years tabooed, but this plan was adopted too late to preserve any of large size. Those which were not cut down for sale, it is said were destroyed by the natives, to prevent impositions being practiced upon them. Not unfrequently, the chiefs would despatch their dependants to the mountains, with nothing to eat but what they could gather from the forest of ferns, the core of whose trunk supplied them with a scanty and precarious subsistence. These hardships were enough to cause whole tracts to become waste. It will be a long time before the remainder of these trees are large enough to become an article of commerce."

OBSERVATIONS BY SIR GEO. SIMPSON.⁸⁵

"Sandal-wood in which the islands abounded, was known to bring high prices in China where it was burnt as a fragrant offer-

⁸⁴U. S. Exploring Expedition, 1838 to 1842. by Chas. Wilkes, 5 vols., Phila., 1845.

⁸⁵Journey Round the World during 1841-42, by Sir. Geo. Simpson, 2 vols., London, 1847.

ing, before the images of the gods; and being, therefore, found to furnish the best means of supplying those artificial wants which occasional glimpses of civilization had created, it was sold in such quantities, as, in one particular year, to have yielded about four hundred thousand dollars.

"The procuring of this lucrative medium of exchange caused, in various ways, and enormous waste of life. As the sandal-wood grew chiefly in rugged and almost inaccessible heights, the natives, accustomed, as they were on the coasts, to a temperature approaching more nearly to perfection, both in degree and steadiness, than perhaps any other in the world, were doomed to endure the chilly air of the mountains without shelter and clothing, the cold of the night being aggravated by the toil of the day; and, when they have accomplished their tasks with bodies enfeebled by these constant privations, and not uncommonly also by want of food, they were compelled to transport the whole on naked shoulders to the beach by paths hardly practicable in many places to one unburdened.

"As a matter of course, many of the poor wretches died in their harness, while many more of them prematurely sank under the corroding effects of exposure and exhaustion.

"During the reign of Kamehameha, who monopolized the trade in question, such evils were in a considerable degree checked by his comparatively enlightened policy; but no sooner was he succeeded, in 1819, by Liholiho, than they were not only systematized in the most cruel manner, but accompanied by incidental evils fully as fatal as themselves.

"That thoughtless and dissipated youth surrendered his father's monopoly to individual chiefs, who knew as little wisdom as they did of mercy; to hard-hearted oligarchs, in whose eyes satins and velvets, china and plate, wines and sweetmeats, were infinitely more precious commodities than the lives of serfs. Under the new order of things the men were driven like cattle to the hills, to every cleft in the rocks that contained a sapling of the sacred fuel; while, through the consequent neglect of agriculture and the fisheries, the women and children, without the controlling power either of social decencies or of domestic affections, were

left to snatch from each other, the strong from the weak and the weak from the helpless, such miserable pittances as rapacious tyrants and hungry thralls were likely to spare for idle mouths. * * *

"Happily, however, the calamities, which once so fearfully thinned the adult population, contained in themselves the seeds of their own cure. Kamehameha's wars established universal and perpetual peace, and the almost utter extirpation of the sandal-wood divested the chiefs of their principal motive for withdrawing their vassals from the ordinary tasks of procuring and preparing the means of human subsistence."

FIGURES OF EXPORT IN THE DECLINING YEARS.

Appendix IX, of Wilkes' Expedition, shows the export value of sandal-wood, at \$7.00 per picul, as follows:

For the year 1836, \$26,000; 1837, \$12,000; 1838, \$6,000; 1839, \$21,000, and 1840 up to August 17, 1841, none.

R. C. Wyllie, in commenting on this subject in his "Notes,"³⁶ has the following to say:

"It will be observed by the tables of export that sandal-wood has ceased of late years. It has for some time been, and is now, subject to a royal taboo; but the King has it in his power to take off the taboo, when everybody might cut and export it, on payment of two-thirds. As the price in China, of late years, has been too low to pay even freight and charges, it is not likely that sandal-wood will again become an article of profitable export."

SCANT EVIDENCE NOW REMAINS.

In Wilkes' journeys around the islands, in 1842, he noted "some sandal-wood bushes" on the slopes of Haleakala, Maui; some "scraggly bushes" of it on the Ewa-Waialua plains of Oahu, and but "bushes" again of it among "several very interesting plants" at the base of the Waianae mountains.

In Seeman's³⁷ visit, in 1849, he notes the rarity of it as follows:

³⁶The Friend, Honolulu, July, 1844.

³⁷Voyage of H. M. S. Herald during 1845-51, etc., by Berthold Seeman, 2 vols., London, 1853.

"The Oahu sandal-wood (*Santalum paniculatum*, Hook. et Arn.), the Iliahi, or Laau-ala, (fragrant wood) of the Hawaiians, is now to be found in only one place, called Kuaoha (Kaneohe?) where it grows on the slopes of the hills, close to the sea. Of the splendid groves, with the produce of which formerly so many ships were laden, but a few isolated bushes, which do not exceed three feet in height and an inch in diameter remain, and these would probably have disappeared had they not been protected by the law, and thus escaped being converted into fuel."

Much search has been made for Cacique's pamphlet entitled, "Shipment of Sandal-wood to China," published in 1845, the only work of the kind known, in the hopes of its containing important data on the subject, but beyond locating a copy in a private library in the Eastern States, we have been unsuccessful except to learn that, mixed with other matters, it contains a long story about the inferior quality of some of the wood.

PRESENT CONDITIONS AND OUTLOOK.

We come, in conclusion, to the principal interest which now centers in the subject, viz.: present conditions and outlook for revival of the trade.

From inquiries in various directions it is learned that scattered clumps, or individual trees, of this fragrant wood are found in different parts of the islands, many of them, however, struggling for existence against their natural enemy, the wild goat, which seem to find its bark exceedingly toothsome. Insects are also said to riddle its leaves and render the tree all the more susceptible to the ravages of the borer, hence the outlook calls for care and encouragement. This is the report of old residents familiar with forest conditions on the islands of Kauai, Oahu and Hawaii.

In response to an inquiry regarding the distribution of sandal-wood throughout the Territory at the present time, the Superintendent of Forestry, Mr. Ralph S. Hosmer, has furnished the following statement:

"The lack of exact information in regard to the composition and character of our forests makes this question a difficult one to answer correctly. On each island in the group are large areas of wild land as yet practically unexplored. These localities offer a wide field for scientific research, especially in the way of a botanical survey. Until work of this character is undertaken it will be impossible to speak with exactness in regard to the distribution of our native flora.

Because of its commercial importance as a forest tree, I have endeavored in my trips about the islands to ascertain the location and extent of existing groves of sandal-wood. So far as I have been able to learn from kamaainas and others, this species is only found at the present time in small groups or as scattered individuals. While specimen trees doubtless exist on each island the only places where sandal-wood is at all abundant seem to be on Oahu, in the forest above Waialua and on Hawaii, in the southern part of the Kona district. In the latter section the sandal-wood is confined to a narrow belt, several miles in length by from one-half to three-quarters of a mile in breadth, lying on the northwestern slope of Mauna Loa at an elevation of approximately 4,500 feet above the sea. This area is a little to the southwest of the words "sandal-wood forest"* on the large government map of Hawaii.

Here are found groups of sandal-wood, usually separated from one another one-eighth of a mile or more and each containing from three to eight trees. The trees in these groups average from twenty-five to forty feet in height and from ten to eighteen inches diameter breast-high. The sandal-wood tree has an erect habit, but few of the trees have a clear bole longer than from ten to fifteen feet, the trunk breaking up into branches at that point.

*NOTE—This area of sandal-wood forest was over-run by fire ages ago; some people think by design, to be rid of compulsory, burdensome toil, while others affirm it to have been the result of an accidental bush fire getting beyond control. No one claims to know the time of its occurrence, which seems evidence in itself that the event had no connection with the "rush orders" of the sandal-wood trade.

The color of the bark is very characteristic, being a warm dark grey, which with the dark foliage makes the tree an attractive one.

The sandal-wood is difficult to propagate, probably because of its parasitic habit of growth which is, as yet, not well understood. Whether or not it is feasible to again grow this tree in commercial quantities is one of the problems which the Territorial Division of Forestry has to solve."

THE COLD-CURRENT SYSTEM OF THE PACIFIC.

BY SERENO E. BISHOP, D. D.

THE object of this article is briefly to state the reasons for maintaining a new theory of a great System of Cold Currents in the Pacific Ocean, corresponding in magnitude to the great system of Warm Currents which terminates in the Kuro Siwo, or Gulf Stream of Japan. The Cold System claimed proceeds from the great Antarctic glacier, forming a deep-sea cold stratum, which creeps along the ocean depths to the northward. After crossing the equator, it is deflected eastward by the earth's rotation, and pushed against the North American Coasts from Sitka to Southern California. The shoaling depth of the ocean brings to the surface this enormous body of cold water, and it emerges to form the well-known Pacific Coast Cold Current, which so remarkably modifies the climates of the States of Washington, Oregon and California. Again deflected to the westward by an opposite effect of the earth's rotation, this Cold Current spreads into the Mid-Pacific and joins the warm Equatorial Current, but first dispenses coolness to the Hawaiian Islands.

To give a little history of the genesis of this new theory: It was the writer's privilege to present in the Hawaiian Annual for the year 1881, pp. 44-49, a new theory of the cause of the peculiarly cool climate of Hawaii. It was then inferred

from certain well-known conditions existing in the Atlantic Ocean depths, that partially similar conditions existed in the Pacific depths. Temperature soundings in the Atlantic had then established the fact that throughout that ocean the water below the depth of 2,000 fathoms was uniformly at the temperature of 35 deg. Fahrenheit in all latitudes. Near the equator, however, the same temperature of 35 deg. was found to exist to within a short distance of the surface. It was thence inferred that cold currents were proceeding from both the Arctic and Antarctic ice along the bottom of the ocean; but that nearing the equator, these two opposing currents met, and forced each other to the surface.

In the above named article the writer inferred that a similar deep-sea cold stratum must exist in the Pacific, proceeding, however, solely from the great Antarctic glacier. There could be no such influence from the Arctic ice, the North Pacific being practically closed in that direction. Hence, it was argued, the deep-sea cold stratum must proceed to the northern limit of the ocean, where it would be pushed to the surface. The effect would be to cool the surface waters of the North Pacific, including those of the Hawaiian Islands. Such was the purport of that article written in 1880.

Subsequent deep-sea soundings made in this ocean have confirmed the fact of the cold stratum of 35 deg. being found everywhere at the depth of 2,000 fathoms, but nowhere approaching the surface near the equator as it does in the Atlantic.

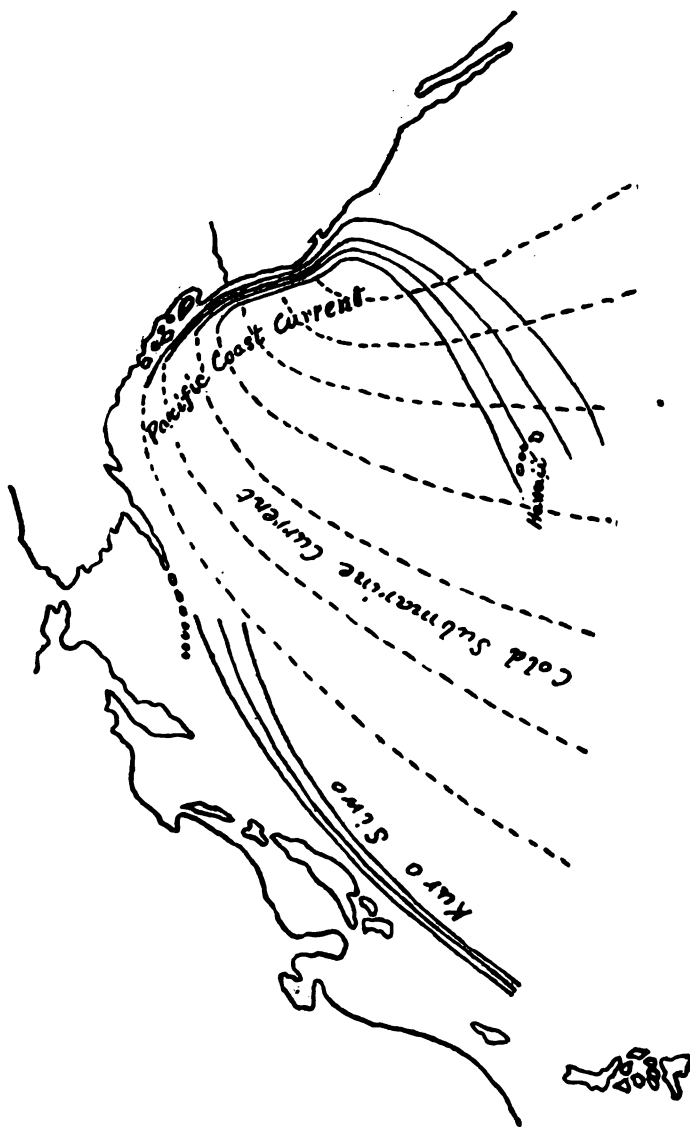
During subsequent years the writer became convinced that the great cause of the low temperature of our ocean waters around Hawaii, ranging from 55 deg. to 70 deg., was to be found in the prevailing current from the Oregon and California coasts, which appeared to be a continuation of the great Pacific Coast Cold Current. The existence of such a current from that coast was verified by the frequent drift of both large trees and of saw-logs deposited in great numbers on the eastern shores of these Islands. These logs and trees

appear to come chiefly from freshets in the Columbia River.

In this manner great doubt came to arise in the writer's mind as to the soundness of his theory as published in 1881.

It was not until about one year ago that what seemed to be the true theory dawned upon the mind. That is, that the Deep Sea Cold Current from the Antarctic ice makes its egress on the American Pacific Coast as a vast fountain of cold water generating the great cold current of that coast. The source of this deep-sea current is in the surface waters of the South Pacific Ocean being chilled by contact with the extremely cold ice of the vast Antarctic glacier and consequently sinking to the bottom forming there a deep stratum of very cold water. This contact is in constant progress along a length of the Antarctic circle of fully 4,000 miles directly facing the South Pacific. A stratum of nearly ice-cold water of that breadth is thus constantly pushing northwards towards the equator and beyond it into the Northern Hemisphere. Its actual existence has been fully verified by deep-sea soundings throughout extensive areas of the ocean, showing a temperature of 35 deg. to exist everywhere below the depth of 2,000 fathoms.

It may be surmised that the movement of this cold current to the northward is very sluggish. But such movement there must be, necessarily involving a point of emergence of the cold water to the surface somewhere at the end of its route in the North Pacific. We then have to consider to what conditions this broad and sluggish current must necessarily be subjected as it approaches its terminus. One of these conditions is a great acceleration of its velocity in consequence of the narrowing of the ocean towards the north. Such acceleration must render the slow deep mass of water more susceptible to the action of the main influence to be considered, which is the powerful eastward thrust applied to it by the diminishing velocity of the earth's surface rotation in the higher latitudes. The principle is familiar to all students of Terrestrial Physics, that all currents either of sea or air proceeding away from



COLD-CURRENT SYSTEM DIAGRAM.

the equator into higher latitudes carry with them more or less of the large easterly velocity of the equatorial surface. Encountering a constantly diminishing surface velocity towards the pole, due to the diminishing distance from the earth's axis of rotation, by the law of inertia these currents are powerfully driven to the eastward.

According to this law, the deep-sea cold current after passing the tropic of Cancer must necessarily be impelled with great force to the eastward throughout the entire breadth of the ocean. The inevitable result would seem to be that this vast body of cold water must find its point of emergence to the surface not in the extreme North Pacific, but in the northeast. And that emergence will be distributed along a great length of that northeast shore of the ocean, which is the Pacific Coast of North America, extending from Southeast Alaska to California. And accordingly we do find in fact a vast and massive body of extremely cold ocean water occupying the surface of that region, and powerfully changing the climates of the adjacent coasts.

In our Physical Geographies, the source of this Pacific Coast Cold Current is usually assigned to a continuation of the great Japan or Kuro Siwo current, which is supposed to skirt the Aleutian Islands and Alaskan Coast, and to be continued on down the American shores. But for several reasons, that theory is untenable. First, it must be impossible for such a current to maintain a compact form across the four thousand miles of route to Sitka; it must fan out and dissipate its force by the time it reaches the longitudes of the Aleutian Islands. Secondly, if it could so retain its compactness as to propagate itself along the American Coast, it would also preserve its warmth, and could not be a cold current. It has been suggested that the Alaskan glaciers would cool it. But the great Muir and Malaspina glaciers are inadequate for such vast effect. They shed no bergs which ever reach the open sea.

But, thirdly, the great decisive reason against such a source, is that it is physically impossible for such a current to take

a southeast course. At the moment when the Japan current should begin to take a southerly direction, the rotation of the globe would necessarily drive it westward. Going southward towards the equator, and traversing a surface of constantly accelerating eastward velocity, such current would be left behind to the westward, or in other words it would experience a powerful westerly thrust, corresponding to the rotation thrust which drives westward the trade winds and the equatorial current. We may therefore dismiss the Kuro Siwo theory of the source of the Pacific Coast Current as wholly untenable.

Here also enters another consideration. As matter of actual fact, we do find a vast cold current setting southeasterly along the American Coast, in spite of the rotation force which tends to drive it to the westward, and which does ultimately drive it westward to the Hawaiian Islands. Hence we seem compelled to recognize the fact of a mighty ocean pressure shouldering this coast current to the eastward. Apparently, the deep-sea current manifests its presence emerging from the depths at least as far south as Monterey.

The validity of the foregoing theory remains to be established by means of a full series of deep-sea temperature soundings along the Pacific Coast across the current, and well out into the ocean, determining the depths at which the 35 deg. water is found as it approaches the coast, as above alleged.

THE Hawaiian saying, "Hawaii o Keawe a me Kauai o Mano," is credited by the native historian Kamakau to the high chiefess Kinau, in 1830. In later years its use became frequent in political campaigns, and, in time, the above inclusive expression was changed by tactful orators and writers to the more personal appeal to the loyalty of ancestry and pride of each islander by the following opening exclamation to their address—"E Hawaii o Keawe; E Maui o Kama; E Molokai o Nui-a-Hina; E Lanai o Keaiea; E Oahu o Kakuhihewa; E Kauai a Mano-o-Kalanipo!"

HONOLULU EVENTS OF 1842-44.

Being extracts from the Journal of an early Merchant-Official.

JANUARY 1st, 1842.—In the afternoon went to a luau at Pitman's house in Nuuanu valley; after dinner had a game of football.

3rd.—Had a conversation with B—r about the tallow affair, and agreed to refer it to be settled on the Coast of California.

6th.—Sold at auction a lot of crockery and fancy goods for account of J. W. Sullivan; sales amounted to about \$760. Br. brig *Courier* arrived from England, via Tres Marias, with a cargo of merchandise. She brings no letters, which, with some other singular circumstances have caused considerable excitement here during the day.

7th.—Br. bark *Jane*, consort of the *Courier*, arrived from England via San Blas.

8th.—Dined and went to an evening party at Mr. Ladd's given by Mr. Calkin preparatory to his leaving by the *Gloucester*.

10th.—Bought of Greenway a bill of exchange for \$1,000 at 15% premium; also 1,100 goat skins at 23 cents which we shipped, with 400 of our own, on the *Gloucester* for Valparaiso.

12th.—Employed, as yesterday, in writing letters and making up accounts for the *California* and *Gloucester*. Mr. H. and Miss W. were married this evening.

13th.—Agreed with Brewer to give Capt. Clapp an order on J. Paty on the coast of California for 361½ arrobes of tallow for \$1,000 on ten months and interest after six months.

15th.—Ship *California* sailed for the coast of California at noon. Bought of Greenway 460 goat skins for shipment, also 180 from Mr. French.

18th.—Today we have had something new for Oahu, a sheriff's sale, the first that ever took place at these islands. Dr. Espiner's goods and chattels were some time since laid under attachment by the governor at the instance of J. R——n, and were

this day sold at public auction; so we advance in civilization. . . . Bargained with R. N. Palmer to put up my native house in Nuuanu valley for \$90, viz., \$50 in cash and the balance in goods.

20th.—Carpenters commenced work on the Nuuanu house yesterday. . . . Today the ship *Gloucester* sailed for the U. S. via Valparaiso; wrote and remitted by her to sundry parties, viz.: Letter, circular and \$500 each to Aslop & Co., J. & A. Crogan, Walsh & Mitchell, and Lahawaga & Bourquin; to E. T. Loring & Co., letter, circular and invoice of \$550; F. D. Atherton, letter % sales and order on E. T. Loring & Co. for \$244.93; E. T. Loring, letter and % sales; John Walsh letter, all of Valparaiso. J. B. Rich, letter, circular and \$300; Maria Paty, letter and \$300; Ephm. Paty, letter and \$400; Bramhall & Howe, letter and bill of lading for pulu; J. W. Sullivan, letter, % sales and % current; Asenath Paty, letter, all of the U. S. . . . It will be eight months since the *Gloucester* arrived here. I have seen much of Capt. Easterbrook during his stay, he having been a constant visitor at the house. I feel sufficient regard for him to regret his absence.

Today we get news from Maui of the death of Hoapili wahine. She died on the 18th inst., adding another to the great number of high chiefs who have died within a few years. We also learn of the birth on the 14th inst. of a prince royal, son of Kauikeaouli and Kalama, and of course heir to the throne.

26th.—Bark *Columbia* arrived 35 days from Columbia river; passengers Mr. and Mrs. Kone of the C. R. Mission. . . . Times being rather dull I have been employed during the last few days in overseeing the work on my Nuuanu house; today laid out the foundation.

27th.—Whaleship *Braganza* arrived, 14 months out with 2,400 bbls. whale oil and 300 bbls. sperm.

29th.—Hard at work these few days past pulling on all strings to raise money to pay our note favor Ladd & Co. on Feb. 1st. We have money enough due us but cannot get it. Wrote a sharp note to Messrs. B. P. & S. regarding the amount (\$520) due us from them.

Feb. 5th.—Employed most of the past week in attending to

my house building. . . . Today arrived the brig *Chacabuco* from Valparaiso via Callao, 38 days from the latter place; Capt. Spaulding, wife and daughter as passengers. Capt. Spaulding has chartered his ship, the *Lausanne*, at Valparaiso, for a voyage to Europe; he tells me he will make \$18,000 or \$19,000 freight. The *Chacabuco* is under charter to him with goods for this market. Got letters from E. T. Loring & Co., F. D. Atherton and J. Walsh.

9th.—Finished my house frame today for thatching. . . . The bark *Jane* and her consort, the *Courier*, sailed today for Canton.

11th.—Had an auction sale of C. Bailey's invoice and some other articles, including 37 bags of damaged bread which sold for 12½ and 15 cents per bag; gross amount of sales \$1,006.03. . . . Arrived brig *Jos. Peabody*, Dominis, from Mazatlan, and H. B. C. bark *Cowlitz* from Monterey. Passengers per latter vessel, Sir George Simpson and Mr. Hopkins, his secretary, and Drs. McLaughlin and Owen and son. . . . Received several letters and an invoice and bill of lading from C. Bailey, Boston. Capt. Dominis brings news of the deaths of Capt. Gilman at Mazatlan, and S. D. Mackintosh on his voyage from New Orleans to Boston.

13th.—Arrived H. B. C. bark *Vancouver*, from London. Mr. Simpson passenger. . . . As times are dull and not much doing I discharged our clerk, A. C. Davis, yesterday; he has been with us nearly five months, during which time I have made enough auction commissions to pay his wages.

14th.—Called with Capt. Dominis and Dr. Wood on Sir George Simpson, Dr. McLaughlin and the other gentlemen. Two days later they returned our call.

22nd.—The trial of the case of J. Dudoit and E. Grimes was to have come on today before the governor, but after the court was organized and a jury formed they settled the case between them. . . . This being Washington's birthday the governor was hired to fire salutes of 26 guns at noon and at sunset; the expense of same at \$2.00 each was paid by subscription. . . . Spent the evening with a large party at Messrs. Marshall & Johnson's.

March 4th.—Arrived brig *Delaware*, Carter, 135 days from Boston. Got a number of letters from the family; learn that

they received news of Henry's death Oct. 13, 1841. Received a small invoice from Sweetson.

11th.—Today we have had a most extraordinary law suit tried at the fort between Messrs. Pierce & Brewer and F. J. Greenway. The latter was owing the former on various notes about \$10,000 for which, in consequence of some remarks of his, they demanded security which was refused. The jury decided unanimously that Mr. G. should give satisfactory security, upon which he (Mr. G.) gave them a note promising to pay the amount by 9 o'clock tomorrow.

12th.—Brig *Chacabuco* sailed for Valparaiso; wrote to various firms there, remitting R. Geyer exchange for \$531; drew on him in favor of V. Bourquin and requested him to pass any balance that may be due us to J. Walsh. Arranged with Ladd & Co. to have the balance of their funds in Alsop & Co.'s hands passed to our credit....Brig *Maryland* sailed for Mazatlan; wrote to mother and enclosed exchange for \$50.54....Had a small auction, amount of sales was \$380.

13th.—Dr. McLaughlin called to take leave as the *Vancouver* sails tomorrow.

17th.—The *Cowlitz* sailed for Kamschatka; Sir George Simpson passenger.....Ship *Congress* arrived from Mazatlan.....Went with a large party on board the *Jos. Peabody*.

19th.—Sailed, brig *Lama*, Jones, for Central America; wrote to brother John by her.....Purchased of Pierce & Brewer white and brown cottons and prints to the amount of \$3,591.33.

24th.—Schr. *California* arrived from California via Acapulco and Maui; much disappointed at getting no letters from John.

April 1st.—Arrived brig *Chenamus* from Salem, touched at Juan Fernandez for water. Passengers: Mr. and Mrs. Grimes, Miss Piper, Messrs. Davis, Baker, Wilson and McClurg. Got no letters from home.

6th.—Mr. Brewer, Mr. Ladd and myself held a survey on a lot of damaged goods landed from ship *Congress*, comprising bro. sheetings, platillas, print, velveteens, moleskins, nankeen, muslin, ginghams, etc., 65 pkgs. in all.

7th.—Today F. J. Greenway addressed a circular to his credi-

tors stating his affairs obliged him to request their meeting at his office this evening to make some arrangement for their settlement. The meeting was held and a statement of his business presented showing the assets of the concern as \$78,000 and the liabilities at \$73,000. Among the creditors were the following, viz.: J. Starkey, \$15,000; J. Dudoit, \$11,000; S. Reynolds, \$7,000; H. Skinner and A. Simpson, \$5,000 each; Pierce & Brewer, \$3,700; Catholic Church, \$3,000; J. Robinson & Co. and G. Pelly, \$2,400 each; G. Wood, \$1,200; Paty & Co., \$500; E. & H. Grimes, \$400; J. Robson, \$200; L. Chamberlain, \$100. After much wrangling and harsh language S. Reynolds, A. Simpson and H. Skinner were chosen as assignees to settle the estate.

9th.—Today a large auction sale was held at Pierce & Brewer's of the damaged goods ex *Congress*; bought for ourselves and others to the amount of \$1,044. A like sale was held on the 12th.

14th.—Sailed, brig *Delaware*, Penhallow, for Boston via Tahiti; passengers, Capt. and Mrs. Spaulding and child, and Mr. and Mrs. Kone and child. Wrote to various firms and remitted \$300 to J. Eustis, and \$350 to Bramhall & Howe.

15th.—Rode up to the pali in company with Capts. Mott, Hays, and Messrs. Dudoit and Marshall, my only visit to the pali for nearly four years. Dined at Dudoit's with a large party.

22nd.—A meeting of the creditors of Wm. French and F. J. Greenway was called by S. Reynolds and Wm. Ladd who have been appointed by Mr. French as his assignees. The meeting was to have been held at the store lately occupied by Greenway, but for certain reasons it was finally held at the Chinaman's rooms. About fifteen persons were present. The papers exhibited showed the estates of French and Greenway to amount to about \$180,000 and the liabilities of the same to about \$90,000.

23rd.—Auction at Greenway's by order of assignees.

27th.—A grand party was given today by Capts. Hays and Dominis on board the *Congress* and *Jos. Peabody*. Brig *Clementine* sailed for Mazatlan.

29th.—Received notice from assignees of Wm. French to present any claims we may have against Wm. French or F. J. Greenway.

May 2nd.—Whaling bark *Daniel* arrived. On her first rounding Diamond Head we took her for the *Don Quixote* and were much disappointed on discovering our mistake.

3rd.—This evening Capt. Mott gave a grand party at Capt. Carter's house; nearly all the respectable residents of Oahu were present.

Sunday, Jan. 1st, 1843.—After an interval of nearly eight months I commence my journal anew, with a full intention to continue it without interruption (unless unavoidable) hereafter, recording such events as may be worth noting, particularly of any circumstances connected with the offices of collector and harbor master of the port of Honolulu to which I have been appointed by the Sandwich Island Government, commission to be dated this day. . . . At home reading during the day; evening attended the chapel, sermon by Rev. Mr. Damon from the text "This do ye in remembrance of me."

2nd.—Received this morning a letter from Dr. Judd, at Maui, enclosing my commission as collector and harbor master signed by Kamehameha III., Kekauluohi, premier, and Kekuanaoa, governor. . . . Employed posting books and regulating our accounts for the past year.

3rd.—There is a scheme talked of today for making a hotel in the Dudoit stone building; the stock to be owned by a company and Capt. Meek to have charge of it.

5th.—Arrived bark *Vancouver*, from Columbia river; cargo, salmon and lumber, bound from this place to California. Also arrived brig *Sarah Abigail* from Mazatlan, with \$150,000 specie on board bound for Canton. She brings letters and papers from the States up to Oct. 15, 1842. The Phoenix Bank, P. J. Farnham & Co., and Stanley, Reed & Co., have failed.

17th.—Nothing worthy of note the past twelve days. Times dull, weather dry and dusty. Myself employed in arranging a set of blanks and other things connected with the new custom house; also superintending the building of a new fence in front of the store.

Have been hearing frequently of late certain extraordinary remarks said to have been made by Stephen Reynolds, one of the

assignees of Wm. French, concerning the payment of a claim held by us on the property of Mr. French. I therefore determined to ascertain as far as possible the correctness of them and called on Mr. French to make enquiries. He informed me that while conversing with Mr. Reynolds about certain goat skins which he (French) had promised me and wished Reynolds to deliver at the agreed price of 20 cents each, he said I should not have them even at 25 cents each. At another time while speaking of who had been paid Reynolds said that as for Bill Paty he didn't care a "d—n about him." To this I need only add that he had pledged himself in the strongest manner, and under his own hand and seal to use the property entrusted to him for a fair, just and faithful discharge of the debts due from the said French.

25th.—Nothing of importance the last eight days; the season had been very dry until the 18th inst., when we had rain which continued daily until the 24th. Trees and vegetation are beginning to improve in appearance. The rain will also have an excellent effect on the trees which have lately been set out in the village.... In conversation with Mr. Reynolds today I charged him with having made certain remarks (see observations on 17th inst.) about the goat skins which I intended to take from Mr. French. He positively denied ever having made such.

19th.—Arrived brig *Jos Peabody* from Mazatlan; she brings a report that part of the *Don Quixote* is sold on the coast, but as I have no letters I am uncertain as to its truth. Bark *Behring* sailed Nov. 3rd for this port.

31st.—Obtained this day, through S. Reynolds, a final settlement of all our claims on Wm. French.

Feb. 8th.—Today we have had one of those little occurrences which so often cause excitement and scandal in the absence of more important matters. It seems that Mrs. N. has been teaching the children at the Oahu Charity School to sing, doubtless believing she was doing them a kindness, but certain wise-acres in the abundance of their wisdom considered it an awful violation of the rules and regulations of the school, and Mr. R-ylds, who is the "big gun" in such cases, felt himself called upon to pay a

visit to the school and give vent to his bile against Mrs. N. over the shoulder of the school teacher, Mrs. J—e. The consequence is that Mr. B—r, viewing the affair (as do most of the residents) as being a blackguard and outrageous transaction, addressed a note to the Board of Trustees, informing them that in consequence of an insult offered to one of his family he, for himself and partner, withdraws from the annual subscribers to the school.

11th.—Yesterday at about 3 p. m. arrived H. B. M. S. *Carysfort*, commanded by Hon. Lord George Paulet. The following is her list of officers: 1st Lieut., Jno. W. Tarlton; 2nd Lieut., Jno. B. Frere; 3rd Lieut., Wm. R. Smith; Lieut. of Marines, F. A. Campbell; Master, Henry Brehant; Acting Purser, Jas. Motley; Naval Instructor, P. Robertson; Surgeon, Geo. P. Munroe; Asst. Surgeon, Robt. Steel.

This morning the *Carysfort* came into the harbor and during the forenoon the following gentlemen called on board to pay their respects, as has always been customary at this place: J. Dudoit, French consul; W. Hooper, American consul; Capts. Jno. Dominis, C. Brewer, J. O. Carter, American residents; Geo. Pelly and G. T. Allen, English residents and agents for Lloyds and Hudson Bay Company. They all met with a very cool if not insulting reception, according to the circumstances related. Mr. Dudoit was the first on board and introduced himself to the officer of the deck as the French consul. Lord Paulet soon after appeared on deck and without offering his hand or any preface of apology informed Mr. D. that he could not receive him as French consul as he (Mr. D.) had not acknowledged Mr. Simpson as English consul. After this a long conversation took place in which Mr. D. informed Lord P. that he considered himself insulted and should represent the matter to his government. After much sharp language Mr. D. took his leave in high dudgeon. Mr. Hooper's reception was exactly similar to that of Mr. D. He, however, disclaimed having insulted Mr. Simpson, and after a few passing observations came away with a "flea in his ear."

I should have mentioned that Dr. Judd, recorder and translator to the S. I. Government, was among the visitors. His re-

ception was, if possible, still more cool than that of Dudoit and Hooper. Lord P. informed him that he would hold no communication with anyone but the King. Of the other gentlemen Lord P. took no notice except to give them a passing nod as they were introduced. Immediately after the return of the consuls and other gentlemen on shore the colors of one French and five American vessels lying in the harbor, which had been hoisted in compliment to the man-of-war, were lowered by orders of their respective commanders. A great and almost universal excitement prevails among the residents against Lord Paulet and Alex. Simpson, (would-be British consul), particularly the latter, who is well known to be the prime mover of all this extraordinary conduct; it is quite consistant with his doings here for the last ten months, setting the government at defiance and treating the laws with contempt.

13th.—Hurrah! for the Stars and Stripes. Hurrah! for our gallant navy. Hurrah! for our glorious country. Oh ye Yankees who live at home at ease, how little can you imagine the stirring thrill of joy and pride that agitates the bosom of your countrymen, who, roaming far away in foreign lands, and in the midst of trouble, difficulty and danger, hears the cry of "sail oh," and the next moment sees the Stars and Stripes floating over the brave hearts and powerful batteries of an American ship-of-war. There may be readers who will smile in derision at this, but I feel assured they will not be from among the American residents of Honolulu in February, 1843. I believe this to be but a faint expression of the feelings of every true American heart in this place when the U. S. sloop of war *Boston* was first seen rounding Diamond Head this day at 2 p. m., anchoring off the port about 5 o'clock. She is from Canton via Tahiti, and brings news that the war with China is ended.... Mr. Hooper, American consul, went on board of the *Boston* and returned with Commander Long about sunset.

14th.—At 12:30 p. m. called on board of the *Boston* in company with a large number of residents and paid our respects to Comdr. Long. The French and American consuls also called on board during the forenoon and were saluted with the usual

number of guns. At 1 o'clock she saluted the fort with 21 guns which were promptly returned. . . . During the day over thirty of the prominent residents (mostly Americans) called on board to pay their respects, and were received with the utmost cordiality. Praises are showered thickly upon Comdr. Long, not only for the contrast between his conduct and that of Lord George, but for the real good humored and amiable disposition which he evidently possesses. . . . Lord Paulet this afternoon called on Messrs. Brewer and Carter, and from what I can learn of these interviews I believe him to be wholly guided by Simpson who is making a mere tool of him.

15th.—Comdr. Long returned my call this forenoon. . . . During a business visit at the fort I witnessed a remarkable interview of Mr. Skinner with the governor concerning an attachment he wished laid upon the property of Mr. French. I made a memorandum of the particulars and placed it on file.

17th.—Breakfasted in company with Mr. Dudoit on board the French whaleship *Adele*. . . . About 2 p. m. the King arrived in the *Hooikaika* from Maui. As he passed the *Boston* she saluted him with 21 guns, and as he landed on Reynolds' wharf he was again saluted from the fort with a like number. Nearly all of the respectable American residents were present on the wharf to pay their respects. He was dressed in uniform and surrounded by his principal chiefs, viz.: Kekauluohi (premier), Kekuanaoa (Governor of Oahu), John Young (Governor of Maui), Leleiohoku (his brother-in-law), Paki and John Stevens (Colonel of the Guard). He was also met by an escort of 300 soldiers, in uniform, with a band of music. . . . At 3 p. m. sat down to dinner at Mr. Brewer's in company with Comdr. Long and a number of residents. About 4:30 we were informed that a letter had been addressed by Lord Paulet to the King, demanding an immediate and private interview. The King replied that he would take his own time for the interview with such persons present as he chose.

During the night Lord Paulet addressed a communication to the King containing certain demands, among which were:

1st—That he should withdraw the attachment laid at the suit of G. Pelly on the property of R. Charlton.

2nd—That he should deliver up to Charlton the lot of land next the seashore claimed by him.

3rd—That he should recognize Alexr. Simpson as British consul here. That he should make good his promise to Capt. Jones to grant a new trial in the case of Skinner vs. Dominis. That no Englishman be put in irons in the fort unless for a crime that would be felony in England, and other demands of a similar nature to which he required the King's assent before tomorrow at 4 p. m., otherwise he should commence hostilities against the government.

18th.—This morning all was bustle and excitement. It has proved the most eventful and extraordinary day that I ever witnessed. I have often tried to imagine what might be the feelings of the quiet inhabitants of a village when notified that a few hours would turn their peaceful home into a scene of violence and destruction. Today I have had an opportunity to realize those feelings. It was generally supposed that the King would not comply with the demands of Lord Paulet, in the event of which war must ensue as will be explained by the following notices issued from the U. S. Consulate at about 10 a. m.:

"To all Americans resident in Honolulu.

"I am requested by Captain J. C. Long of the U. S. Ship "*Boston* to give publicity to the following letter received last evening:

"Her Brittanic Majesty's Ship *Carisfort*.

Wahoo, Feby. 17, 1843.

"Sir:—I have the honor to notify you that Her Brittanic Majesty's Ship *Carisfort*, under my command, will be prepared to "make an attack upon this town at 4 p. m. tomorrow (Saturday) "in the event of the demand now forwarded by me to the King "of these islands not being complied with by that time.

"I have the honor to be, Sir,

"Your most ob't Humble Servant,

"(Signed) GEO. PAULET, Captain.

"I am further requested by Capt. Long to tender to all American citizens his ship as an asylum for their families and property
"in the event of any hostile movement on the part of the British
"force now in this harbor.

"(Signed)

WM. HOOPER,

"Acting U. S. Com'l Agent.

"Office of U. S. Agency,

"Oahu, Sandwich Islands, Feby. 18, 1843.

"To the Commanders of American Vessels in the Port of Honolulu.

"Gentlemen:—I have to request that you will cause all the
"boats belonging to your respective ships to be manned and
"sent to Mr. Reynolds' wharf to render any assistance which
"may be required by citizens of the United States resident here
"pending the difficulties between this Gov't and that of Great
"Britain, and oblige,

"Your most ob't St.

"(Signed)

WM. HOOPER,

"Acting U. S. Com'l Agent.

"Office of the U. S. Com'l Agency,

"Oahu, S. I., Feby. 18, 1843."

From 10 o'clock till 2 our streets presented a most extraordinary spectacle for a town usually so quiet as this. The streets were crowded with carts containing money chests, book safes, trunks, personal clothing, etc., all hastening toward the wharves to be placed on board of the ships (particularly the *Wm. Gray*) for safety. All the English women and children in the place (except Dudoit's, French consul's family) were sent on board the English brig *Julia*, lying outside. The American women and children and Dudoit's family prepared themselves to go on board the U. S. S. *Boston* at 2 o'clock. Such was the state of affairs until about 1 p. m., when rumor informed us that the threatened attack would not take place, which was soon after confirmed by the following notice:

"To all Americans resident at Honolulu, Notice.

"Office of the U. S. Com'l Agency,
"Oahu, Sandwich Islands, Feby. 18, 1843

"The undersigned has the pleasure to announce to the citizens
"of the United States, resident at the Sandwich Islands, that
"he has received official information from the governor of this
"island announcing that the difficulties between this Government
"and that of Great Britain are in progress of amicable adjust-
"ment.

"(Signed)

WM. HOOPER,

"Acting U. S. Com'l Agent."

We have since learned that the price paid by the King to preserve his dominions from the threatened ruin and desolation, was, unconditional compliance with all of the demands (monstrous and oppressive as they are), made by Lord Paulet. After this who can doubt the truth of the adage that "might makes right." There cannot be a doubt but that of the demands made by Lord P. the largest number were unjust and oppressive in the last degree, while to say the least many of the others were of such a nature as to admit of much argument. The points conceded by the King involve an endless succession of difficulties and sacrifices, many of them deeply interesting to Americans and other foreigners resident here.....Arrived, ship *Fama* from California, and French bark *Jules Simonet* from Valparaiso and Marquesas.

20th—About noon today the King made his visit on board the *Carysfort* on which occasion the yards were manned and 21 guns fired.

21st.—At 2 o'clock the King visited the U. S. S. *Boston*, and was received with manned yards and a salute.

22nd.—This evening we had a grand ball in the long stone building on the premises of J. Dudoit, in commemoration of the birth of George Washington. Nearly all of the officers of the *Boston* were present. The thing came off with the utmost hilarity and good feeling, upward of sixty persons comprised the company, which broke up about 5 a. m.

25th.—The piratical proceedings of the *Carysfort* which commenced on the 11th inst. and continued by bullying and threats of violence on the 18th inst., have this day been consummated by taking formal possession of these islands, an act of high-handed robbery and oppression of the strong upon the weak which is unequalled in history. It is well known that during the past week Lord Paulet has made a series of demands of the most absurd nature upon the King of these islands. Among others I understand there are demands for about \$80,000 to be paid four or five Englishmen, resident here, for pretended injuries suffered by them from this government.

About 11 a. m. the French and American consuls received communication from Lord G. Paulet saying that a Provisional Cession of the islands had been made by the King and premier to him, as representative of the Queen of England, and that the English flag would be hoisted on the fort at 3 o'clock this p. m. The printed documents have since been made public and will serve to explain the circumstances under which this "Cession" was made.

27th.—This evening Capt. Long and the wardroom officers of the *Boston* gave a grand ball to the foreign residents on board of that ship. She was fitted up with flags and bayonet chandeliers, etc., in fine style, an excellent supper and good liquors were provided. The ladies left at about 2 a. m., and the gents at about 5 o'clock in the morning.

March 1st.—Today I received notification from the British Commission to appear before them at 11 a. m. tomorrow and present my accounts, and receive instruction with regard to an additional duty about to be laid on imports.

2nd.—Agreeable to notice received yesterday, I presented myself before the British Commission this forenoon. I was civilly received (though coldly) by Mr. Simpson and Major Mackay (having been previously acquainted with them) and introduced by Dr. Judd to Lord Paulet and Lieut. Frere. My accounts were presented and examined; no fault was found with them though I think Simpson was strongly disposed to do so but lacked opportunity. I was questioned particularly as to what authority

I had for giving time for the payment of duties. Simpson had a great deal to say about the regulation requiring \$60 bonds of seamen, landing here, to leave the islands in two months, and particularly about the fee of \$6 allowed me by the governor for drawing, recording and cancelling the bond. He seemed determined to have it annulled but was met by the others with a decided veto. Lord Paulet asked me if I knew that an additional duty of one per cent had been laid on imports. I replied, rather significantly, that I had seen a notice posted about the village to that effect. He said that notice should be sent me and ordered Mr. Sea, the Secretary, to see it done. During the whole interview I was much struck with the conduct of Mr. Simpson. Although not originally named as being in any way connected with the Commission, and even now crowded in as a joint Secretary, he had not taken his station at the table with Mr. Sea, the other joint secretary, but was seated at the table with the four commissioners and, what was still more assuming on his part, had more to say than the four commissioners together; his grand object in every remark, evidently, was to place this government and all connected with it in the worst possible light. Indeed I truly believe that I am doing him no injustice when I say that it was evident that any honorable principles that he *might* possess were completely mastered by his vindictive feelings and passions.

I have this day commenced an engagement with Dr. Judd of the following tenor: I am to hire Mr. Von Pfister for three months from this date and to pay him for that time \$200 and also to board him and find him lodgings. All of the leisure that I am able to gain by this arrangement I am to devote to the assistance of Dr. Judd in the business of the Treasury Board for which I am to receive \$400.

8th.—This evening a dance was given by Mr. Grimes to the Captain and officers of the *Boston*, and on the evening of the 10th a like entertainment was given by Capt. Carter in their honor.

11th.—Schr. *Albert* (late the *Hooikaika*) sailed for San Blas and Mazatlan; she went outside just at sundown and anchored, and finally got away at midnight. This vessel is the property of the S. I. Government, but has been taken possession of by

Lord Geo. Paulet for the use of Queen Victoria, and now goes to San Blas to carry Mr. Alex. Simpson (late acting British Consul here) on his way to England. Mr. J. F. B. Marshall also goes as bearer of dispatches from the S. I. Government;* on the result of this expedition will depend the fate of the S. I. Government.... Wrote a long letter to mother and remitted her a bill of exchange for \$200.

13th.—Arrived whaleship *Chariot*, 14 mos. out with 400 bbls. sperm and 2,000 bbls. whale oil. Also arrived brig *Lama*, Jones, 53 days from Iquique and Valparaiso. Got letters and % sales from Alsop & Co. and E. T. Loring & Co.; sugar sold for 4 cts.; goat skins for 42 cts.; at same time a lot sold for P. & B. at 50 cts.

14th.—Arrived brig *Bolivar Liberator*, 34 days from Mazatlan. Got a letter from John, and also one from J. W. Sullivan, Boston. She brings dates to Dec. 26, '42.... Mr. Sullivan advises that the exchange remitted by us Aug. 5th, '42, for \$1,000 on Bramhall & Howe has been protested by them for want of funds, and that they remarked to him that they had notified us a year ago that they would not accept our drafts unless in funds. This, so far as I know, is false, but even if true it is no reason in this case, as the bill drawn on them was upon a bill remitted to them by the same conveyance for \$2,000.... Attended a large party this evening at Mr. Brewer's, given to Capt. Long and officers by the residents. The company did not depart until 6 in the morning.

17th.—Arrived bark *Bhering*, Snow, 134 days from Boston, with the following passengers: Mrs. and Master Dominis, Mr., Mrs. and Miss Castle, Miss Goodale, Mr. and Mrs. Calkin, Mr. Johnson, Mr. Reynolds.... Sailed schr. *Victoria*, for Valparaiso. The *V.* belongs to the S. I. Government, but is now going on the service of H. B. M. Queen Victoria to carry dispatches from Lord Paulet to the English Admiral.

18th.—Sailed, whaleships *B. Gosnald*, for home, and *James Stewart* to cruise on the N. W. Coast. The *J. S.* was about to

*This was a secret mission.—Ed.

sail without having complied with the port regulations, and as I was going to the wharf with a note addressed to Capt. Adams, the pilot, on the subject, I met Lord Paulet and informed him of the circumstances, viz.: that Capt. Smith had not paid the government taxes nor yet got the governor's permission for three natives that he had on board, nor had he got a clearance certificate. His Lordship immediately sent his gig on board of the *J. S.* for Capt. Adams and on his coming ashore he gave him a reprimand and told him that he must not take a ship out of the harbor without first seeing a clearance signed by me, and then directed him to go on board and tell Capt. Smith that he would not be allowed to leave the harbor until he had complied with the regulations and got a clearance.

30th.—Arrived French whaleship *Ajax*, Le Tellier, for repairs, having ran into the *Ann Maria* of New London, and sunk her, at sea; vessel and cargo of 1,900 bbls. oil a total loss; crew saved. . . . My second daughter was born this evening.

April 5th.—This evening at about 10 o'clock our neighborhood was alarmed by a dreadful outcry at the house of Mr. Ladd. It proved to proceed from a scuffle with Mr. Greenway, who is partially insane. He threw a heavy lamp at Mr. L., narrowly missing him. He was finally secured and sent to the fort.

11th.—This evening joined the Masonic Lodge just established here by Capt. Le Tellier. My brother John, F. W. Thompson, and R. Davis were taken in at the same time.

July 2nd.—Arrived, H. B. M. sloop-of-war *Hazard*, Bell, commander, from Tahiti, and on the 7th, the U. S. frigate *Constellation*, Com'r Kearny, arrived from Amoy, China.

14th.—Today the young chiefs visited the *Constellation* and on leaving the ship we had the pleasure of seeing the old Sandwich Island flag flying once more; a flag made on purpose for the occasion; it was hoisted at the frigate's fore and saluted in good style.

18th.—A petition or memorial was got up by the American residents requesting Commodore Kearny to remain here with the U. S. ship *Constellation* under his command until the arrival of some other U. S. vessel, or the settlement of existing difficulties.

Owing to the course pursued by R——ls in regard to a number of documents that have been circulated here within a few months past, this was not presented to him; with this exception it was signed by nearly every respectable American in the place.

[Unfortunately a hiatus occurs here covering a most interesting portion of Hawaiian history, viz.:—the sequel to Lord Paulet's acts in the arrival of Admiral Thomas in H. B. M. frigate *Dublin*, from Callao, July 26, and his restoration of the flag and sovereignty of the islands to Kamehameha III, July 31st, and the attendant incidents of national rejoicing.—Ed.]

Sept. 4th, 1844.—After an interval of nearly fourteen months, (the excuse as usual is hurry and want of time), I recommence my journal. I have this day, at the request of the Hawaiian Government, engaged to act, in connection with Mr. Francis Johnson and Mr. Wm. French, as one of the receivers under the direction of the Court of Chancery, of the estates of F. J. Greenway and Wm. French.

9th.—During the last five days I have been engaged more or less each day in consulting with the other receivers upon the affairs of Messrs. French and Greenway. Wrote to the governor requesting permission to employ a clerk and to effect sales under \$300.

10th.—Wrote to the governor notifying him of our employment of J. Austin as clerk, and requested permission for him to copy papers concerning the estates.

18th.—Wrote to Messrs. Reynolds and Ladd requesting them to deliver to J. Austin all property belong to the estates of F. & G.

19th.—Brig *Lafayette* arrived from Hawaii with 58 cattle belonging to the estates of F. & G. Learn from the captain that he got under way with cattle on board, but having got ashore he was obliged to throw a number overboard to save the vessel. As we learn from Backle's letter to Mr. French, many of them perished.

21st.—The cattle landed from the *Lafayette* were so exhausted

that before we could get them out to the plains ten of them died.

26th.—Wrote yesterday to the governor enclosing copy of our letter to Reynolds and Ladd, requesting his interference; today, with Mr. Johnson we made oath before him to the correctness of same.....Saw Messrs. Hooper, Benson and G. Bush concerning our arrangement for reducing the price of beef.

Oct. 7th.—Engaged since last writing, mainly in estate matters.....Today held an auction sale at Robinson & Co.'s wharf; sold 955 bbls. whale oil, 18,800 lbs. kentledge, 1 anchor and chain, and lot of firewood. Gross sales \$7,658.17; commissions \$229.75.....Called on Mr. French and arranged for obtaining such goods as may be in the hands of Messrs. R. & L. belonging to the estates.

8th.—News received this day that the fine ship *Holder Borden*, Capt. Pell, was wrecked on a reef to the westward of these islands in April last; they had built a small vessel from the wreck and are now on their way to this place.....Sent letters to Pitman with a shipment of sundries per *Amelia* to meet his order. Receivers wrote him enclosing an order on Capt. Backle for cattle to be delivered to him.

10th.—Having some days since got a search warrant from the governor we this day put it in the hands of the sheriff for the purpose of obtaining property which might be in the hands of Reynolds and Ladd belonging to the estates of F. & G. The sheriff called upon Mr. R. who, after hearing the warrant read demanded a copy, which was given him. He then replied that he had no property belonging to French's estate, and stated that the schr. *Bee* had been given up some months ago. After the sheriff had served the warrant and while still in Mr. Reynolds' store I also called (the first time for some months). As I went up the yard R. came to his door and after staring at me awhile came down the steps and passed me as I was ascending. Shortly afterward I heard that he had remarked that if he had been in his store when Billy Paty came there he would have pitched him down stairs.

12th.—Held an auction sale yesterday of the hull and appurtenances of French wh. bk. *Ocean*. Total sales \$6,604.50; com-

missions \$198.13. Today held another at C. Brewer & Co.'s; amount of sales \$6,331.60; commissions \$158.29.

14th.—Auction sale on Reynolds' wharf of schr. *Hope* and articles saved from wreck of the *Holder Borden*. . . . Survey held by O. P. Ricker and E. Jones upon schr. *Bee* and salt provisions belonging to the estates of F. & G. Wrote the governor for permission to sell same.

30th.—Very busy the past two weeks with auctions and ship business so that I have neglected my journal. . . . Commenced moving down from the valley. . . . Wrote per *Lafayette* to E. T. Loring & Co., Valparaiso, as agents for J. Dudoit, French consul, enclosing his bills on France for 13,500 francs, with an order for goods to be shipped in my name. . . . The U. S. ship *Warren*, Capt. Hull, arrived yesterday from Mazatlan, bringing dates to July 15th. The news are: Great excitement upon election of next President; row and mob among the Mormons, Jos. Smith shot; many vessels on their way to the islands.

Nov. 9th.—Trial of Ricord's claim as agent for the estates of F. & G. for the premises occupied by H. Skinner & Co. was concluded at 1 o'clock; verdict for the defendant. . . . At 5:30 p. m. sailed for Kauai on the schr. *Victoria* in company with Dr. Judd, Secretary of State, and John Ii, member of the Treasury Board. This is my first visit to the Island of Kauai, and is also the first time I have been off of Oahu since my arrival from the States in February, 1840. I take this trip at the invitation of my friend, Dr. Judd, and hope that it will benefit my health. . . . Very sea-sick.

11th.—Yesterday and today mostly light winds; terribly sea-sick. At 3:30 p. m. came to anchor in Hulaia, glad enough to get ashore; found two horses ready provided for us and at 5 o'clock Dr. J. and myself set off for Wailua, distant 4 or 5 miles. Arrived just at dark at the house of Deborah, formerly queen of the island but now reduced nearly to the level of the common natives. Ate a few splendid oranges and retired early.

12th.—Got up early and breakfasted at daylight from the remains of our own stores and some fine fish supplied by Deborah. A little after 7 o'clock started with Dr. J., John Ii and a guide,

for Hanalei, distant about 35 miles. The ride from Wailua to Hanalei is an exceedingly pleasant one, a great part of it on high table land bordering the sea-shore and for many miles you pass through park-like scenery of level grass land dotted with groups of trees. We passed some beautiful vallies among which I particularly noticed that of Moloaa, the very place for one who might wish to turn hermit.

The first appearance of Hanalei valley as it lays before the traveler coming from Koloa is magnificent, far before anything of the kind that I have ever seen. You ride for miles through an orchard like scenery when suddenly you find yourself on the brink of a high and almost perpendicular hill forming one side of the valley. At your feet lays for miles the broad level expanse of the valley with its beautiful river winding through the midst, where are the large coffee plantations of Mr. Bernard and Mr. Titcomb, containing upwards of 100,000 trees, all to be seen at a glance. Was most kindly received by my old friend, Mr. Titcomb, at whose house we arrived at about 3 p. m. He soon produced us an excellent dinner and as regards the use we made of it I need only say that since our last dinner we had two days of sea-sickness and one of hard riding.

13th.—Rode up the valley of Hanalei in company with Dr. Judd, Mr. Johnson, Mr. Rowell, Mr. Titcomb and John Ii; visited Mr. Bernard's plantations, both lower and upper, Charlton's land, etc. Dined at Mr. Johnson's (Mission school teacher), strolled through the village and took tea with Mr. Rowell, missionary. Made enquiries about French's affairs; a few cattle and one horse are in the hands of the governess.

14th.—Started at 7 o'clock a. m. and rode from Hanalei to Koloa, a distance of 50 miles; reached here just at sunset pretty well tired out. While on the road got a kick from a led horse, bruised my arm severely and narrowly escaped with my life. Found a home at Mr. Burnham's where we was very kindly received.

15th.—Rode over the village and plantations of Koloa. Sugar mill is a good substantial piece of machinery; buildings generally good. About 500 acres of good cane standing.



16th.—Rode to Waimea, some 16 miles; examined with Dr. Judd the fort and took an inventory of guns, ammunition, etc. Dined with Mr. Whitney, a missionary, who has resided here upwards of 20 years, and rode back to Koloa which we reached at sunset; a hard day's work.

17th.—Sunday; attended church at Dr. Smith's house, services by Rev. Mr. Pogue.... Visited Mr. Lindsey and my old friend and former fellow passenger, Mr. Tobey.

21st.—For the past three days we have waited very impatiently for the vessel which was ordered here to carry us to Honolulu. This morning early heard that the *Hooikaika* is at Hulaia and coming directly here. Got letters from Honolulu; lots of news. *Julia* has arrived from California bringing letters. Number of auctions, one of cargo of *Ontario*, sales amount to \$14,000; commissions \$424; very impatient to get away. Liverpool & Wilmington Packet wrecked Nov. 15th.

22nd.—At 10 a. m. sailed for Honolulu in the *Hooikaika*; passengers, Dr. Judd, Dr. Smith, Messrs. Burnham, Titcomb, Ladd and Ii, and Miss Whitney. Light breezes from S. W. to N. W.

23rd.—Took a fresh S. W. breeze after midnight which bore us rapidly along so that we landed at Honolulu after a short passage of 23 hours, right glad to get home again.

24th.—Saw Mr. Pelly and got his consent to act as receiver in the place of Mr. Johnson, resigned.

[Various entries up to the middle of January, 1845, refer principally to receivership matters of the French and Greenway estates.—Ed.]

Jan. 20th, 1845.—Meeting of the Hawaiian Whaling Company at the French consulate; committee appointed to enquire into the state of the ship, etc. . . . Meeting of the receivers; signed and despatched letters to Geo. Bush, and agreements with Peck & Co. and Rathburn. Passed several bills vs. the estate.

26th.—U. S. ship *Brandywine*, Comdr. Parker, arrived, 54 days from China.

27th.—Today at noon, much to the disappointment of Mr. Commissioner Brown and some others of his clique, the *Brandywine* saluted the fort with 21 guns.

28th.—Called on Comdr. Parker and officers of the *Brandywine*, in company with Mr. Jarves; were very politely received. Ahung, the Chinaman, died.

[Journal ends.]

NEW SUGAR MILL AND BOILING HOUSE

Of the Hawaiian Commercial & Sugar Company, Erected at
Puunene, Maui—Hawaii's Largest and Most
Modern Sugar Factory.

A Valuable Descriptive Paper by J. N. S. Williams, M. I. Mech. E.

[Selected from "Proceedings of The Institution of Mechanical Engineers," London, by
Courtesy of the Author.]

THE rise of the cane-sugar industry in the Hawaiian Islands may be dated from the year 1876, when a reciprocity treaty between the Governments of the United States of America and the Kingdom of Hawaii permitted the entrance of Hawaiian raw sugars into the United States free of duty. * * * *

The sugar-houses of that date were not designed to secure a maximum return of finished product from the canes ground, mainly for the reasons that the raw material was cheap, and price of sugar was high; so that satisfactory returns on invested capital were obtained in spite of manufacturing losses, which would be ruinous at the present day. The expansion of the industry was rapid, but in later years the price of labor increased, making the cane cost more, and the price of sugar declined, reducing the margin of profit; this compelled an improvement in the process of manufacture, and

at the same time, in the methods of cultivation, as can be readily seen from the following comparison:

Twenty years ago the average yield of commercial sugar was about 9 lbs. per 100 of cane, and the average yield of cane per acre was about 25 tons. At the present day the average yield of commercial sugar is about 12 lbs. per 100 of cane, and the average yield of cane per acre is about 40 tons. The above averages are taken over the whole group, but there are individual plantations of great size, where the average yield far exceeds the above figures.

A detailed history of the steps in improvement, cultivation and manufacture of cane and sugar in the Hawaiian Islands during the past twenty-five years is beyond the scope of the present paper, which describes the design, construction, and operation of the new sugar factory of the Hawaiian Commercial and Sugar Co., incorporated in San Francisco about twenty-five years ago. This company acquired from the Hawaiian Government an immense tract of land, with its pertaining water-rights, on the Island of Maui, and erected a sugar factory,¹ which was then one of the finest in operation, making upwards of 100 tons of raw sugar daily.

With the lapse of years and change of conditions, it became necessary to remodel the systems of work to meet the altered circumstances, and the old factory being no longer adapted to handle the greatly increased crops, the task of designing and constructing the new sugar-house was placed in the hands of the Honolulu Iron Works Co. of Honolulu, an old established concern, whose intimate acquaintance with the requirements of the case, and previous successes in the construction of modern sugar factories, warranted the confidence placed in them by the Board of Directors of the Hawaiian Commercial and Sugar Co. The factory is designed to grind a maximum of 3,600 tons of cane per day of twenty-four hours,² which

¹At Spreckelsville.

²Puunene Mill requires the harvesting of 60 to 70 acres of cane per day, a field yield of 50 to 60 tons of cane per acre; there was a crop acreage of 9,000 to 12,000 acres, and a total acreage under cultivation of from 30,000 to 35,000 acres, since three crops are in hand at once.

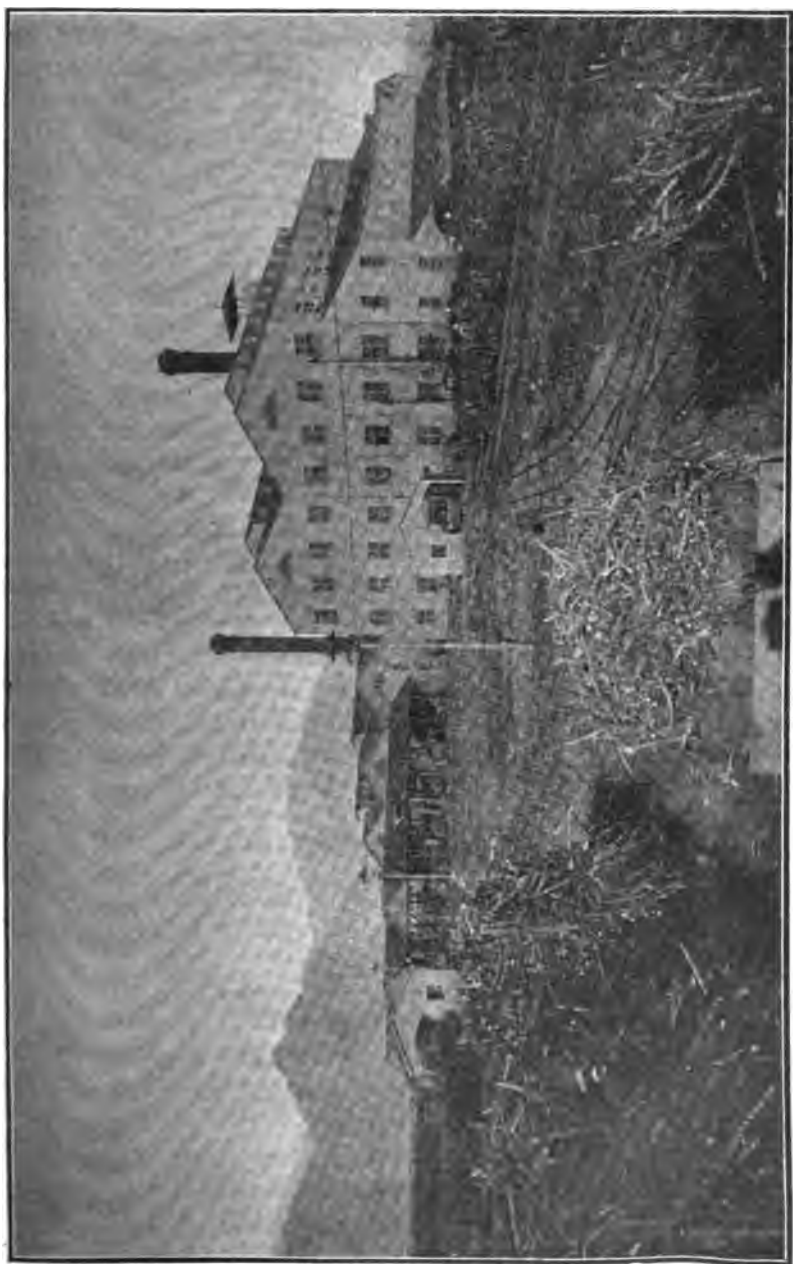
quantity of cane, when at its best, will yield about 550 tons of commercial sugar of about 96 per cent. pure sugar. The amount of cold water required for the condensers of the vacuum, evaporating and graining apparatus in the plant will reach 9 million gallons per day; as this amount of water is sufficient to irrigate some 800 acres of cane, it became necessary to so situate the buildings that this water, after having been used in the factory, could be turned into the irrigating ditches below the mill site.

The handling of 3,600 tons of cane during daylight necessitated special arrangements of railroad tracks for storage of cane for night service, and so placed that the full cars would descend towards the scale houses, thus requiring the minimum of effort to move them. The immense quantity of cane to be handled required that the storage yard be approached from all sides; and the great area of cane lands indicated a central position so as to reduce the average length of haul of cane. Since the finished product amounts to only one-eighth of the weight of the raw material, the question of shipment of sugar was a secondary one, and the other conditions being satisfactorily met, the sugar shipments were found to have been well provided for.

Having the foregoing considerations in mind, the new works were laid out on a piece of waste land near the centre of the plantation at an elevation of 73 feet above the sea, about one and a half miles from the port and 15 feet below one of the principal irrigating canals, whence the supply of water for the condensers is drawn. The plot has a 1 per cent. gradient to and from the buildings, the surface soil being volcanic, mixed with huge boulders; the underlying stratum is an old lava flow of considerable depth, thus furnishing a site which not only met all the surface conditions, but gave a foundation for the buildings and machinery that could not be surpassed. [This location is known as Puunene. Ed.]

BUILDINGS.

The buildings are of steel construction, covered with corrugated iron, and occupy a space approximately 300 feet by 400



feet square; the grinding mills have each their own house, the houses extending over the boiler plant; the clarification, filtration, concentration and graining apparatus are contained in two buildings side by side, each having the requisite floors and supporting columns for the machinery designed and built in with the main structure. The columns are all carried upon concrete foundations built upon bed rock, none of these foundations being loaded to more than 3 tons per square foot at the base, the outer columns of building being carried upon a continuous wall of concrete, on the outer side of which, gutters 3 feet wide and 1 foot deep are fixed to carry off the rainfall on the roofs. The ground floor of the building is of concrete, 6 inches thick, in which are situated all the necessary drains and gutters for washing down the various apparatus. The buildings are lighted by glazed sashes on the sides and ends, and fixed skylights in the roof, some 30 per cent. of roof surface being skylight, and some 25 per cent. of vertical surface being glazed; the sashes do not slide, but open by swinging on trunnions, a form of construction that should not be used where severe rain-storms accompanied by high winds occur, as the sashes cannot be kept water-tight. The buildings are painted with a neutral tint graphite paint inside and outside, while the exterior surface of the roof is painted with a mixture of coal tar and red lead put on boiling hot.

MACHINERY AND APPARATUS.

The machinery and apparatus, complete, consists of:

3 sets of crushing mills, each of capacity to grind 1,200 tons of cane per twenty-four hours.

20 boilers with individual furnaces and fuel feeders.

Clarification plant. Filtration plant.

2 quadruple effect evaporators of the Lillie system.

6 vacuum pans, each capable of making 100 tons of dry sugar per day.

30 crystallizing tanks, of the Bock system.

20 centrifugal machines for drying grained sugars.

Elevators, conveyors and bagging apparatus for handling the finished product

The following is a detailed description of the machinery and apparatus, taking the course of the cane as it leaves the grid-iron of storage tracks, and the juice as it leaves the crushers.

The cane as it is cut in the field is loaded upon cars, 7 feet wide by 12 feet long, each having four wheels and running upon tracks of 3 feet gauge; the end of the cars are boarded up, and each side is formed of 3 removable stakes set in sockets so designed that the stakes are readily cast loose.

After passing the scale house, where each car-load of cane is weighed, the cars are brought up to the cane carrier, one on each side; the inward stakes are removed and the cane discharged by the automatic cane unloader, which consists of a triangular framed structure carrying four moving endless chains with fingers, and capable of being raised to allow a car-load of cane to pass under, and then lowered until the fingers or rakes on the chains reach the cane and pull it off the cars in such quantity as may be needed. There are two of these cane unloaders, one on each side of the cane carrier, and the combined action of the two is sufficient to unload the cane as fast as the crushing apparatus can receive it. After the cars are emptied they are run forward to a turntable, making room for the full cars behind them, and are then directed to the empty car tracks; the stakes are replaced, and the cars weighed for the tare and then run forward to the tracks for making up the trains of empty cars.

CRUSHER AND MILLS.

The cane being discharged on the carrier is conveyed forward and upward until it reaches the preliminary crusher, which consists of two rollers, 26 inches diameter by 72 inches long, set vertically one above the other. These rollers are of solid cast steel and have zigzag grooves about 2 inches deep and 6 inches pitch, running lengthwise of the rollers; these grooves or teeth mesh into each other, draw in the cane, partially crushing it, and partially cutting it up into

about 6-inch lengths; after passing the crusher, the mass then slides down an iron apron into the jaws of the first three-roller mill, where it is crushed under a pressure on the top roller of 230 tons applied by hydraulic rams acting on the brasses of the top roller. After passing this mill, the crushed cane is sprayed with hot water, and carried by an endless apron conveyor, made of steel slats on chain belting, to the jaws of the second mill, which is a duplicate of the first but operating under a pressure of 320 tons on the top roller. The crushed cane, on being discharged from the second mill, is again sprayed with hot water, and by a travelling apron, a duplicate of that between the first and second mills, is conveyed to the jaws of the third mill, which is the same size of the first two, and operated under 400 tons on the top roller; here the cane gets its final crushing, discharging the bagasse in the condition of fine shreds containing from 44 to 48 per cent of moisture and from 7 to 9 per cent. of the sugar originally in the cane.

The crushing-mills consist of cast-iron rollers, 34 inches diameter by 78 inches long, keyed to hammered iron shafts, 18 inches diameter in the roller, and having journals $15\frac{1}{2}$ inches diameter by 20 inches long; the rollers are carried in heavy cast-iron housings, fitted with suitable bronze bearings; the returner bar is a very strong cast-iron beam, pivoted on trunnions at the bottom of the housings, and drawn up against the front roller by two large bolts which extend outside the housings, so as to be easily accessible. Since this returner bar or knife is what passes the crushed cane from the front roller to the back roller under the top roller, it is subjected to very heavy strains, and requires careful adjustment to avoid setting up undue friction.

The mills and crusher are operated by one Corliss engine, cylinder of 30 inches diameter by 60 inches stroke, running at 44 to 54 revolutions per minute. The speed of the engine is reduced through a train of compound gearing very strongly constructed, the pinions of which are of cast steel, and the wheels, having cast-steel solid rims bolted to cast-iron

spiders, the pinions being shrouded to the tops of the teeth, while the wheel teeth are bare. The first motion pinions and spur wheels have teeth $4\frac{1}{2}$ inches pitch by 14 inches face, the second motion pinions and spur wheels have teeth $4\frac{1}{2}$ inches pitch by 18 inches face, all mounted on hammered iron shafts, carried in cast-iron pillow-blocks which are lined with Babbit metal. The proportion of the gearing is such that, when the engine is running at 45 revolutions per minute, the peripheral speed of the crusher roller is 28 feet per minute, that of the first mill is 20 feet, the second mill 23 feet, and the third mill 26 feet per minute. The object in thus giving increased peripheral speed to each mill in the train is to reduce the thickness of the blanket of crushed cane going through each mill in the series, so that the increased pressure upon the top roll in each mill acts upon a thinner blanket and thus produces a better extraction with a given pressure.

BAGASSE CONVEYORS.

The refuse of the cane, or bagasse, after leaving the last mill, is received on an elevator, consisting of link belt chains connected by wooden slats or scrapers, which catch the bagasse as it leaves the mill and elevates it up to a horizontal conveyor at a height of about 25 feet above the floor and inside the boiler-room. This horizontal conveyor runs across the building, and is designed to serve the two longitudinal carriers which distribute the bagasse to the furnace feeders.

BOILERS.

For the ultimate capacity of the sugar-house there will be required 20 boilers, of which 14 have been placed. These boilers are 7 feet diameter by 20 feet long, furnished with 118 tubes, 4 inches outside diameter; heads are $\frac{5}{8}$ -inch thick, shells 9/16-inch thick with treble-riveted butt joints, designed to carry 125 lbs. pressure of steam. They are arranged in two lines—ten on one side and four on the other; the boilers are set in brick, with a special furnace in front of each one, de-

signed for burning the low-grade fuel furnished by the cane. The grate surface as originally designed, was 49 square feet for each boiler, but it has been reduced to 36 square feet with very beneficial results. The heating surface of the boilers is 2,600 square feet for each, and ratio of grate surface was 1 to 53, but is now 1 to 72. Each battery of boilers is served by a steel chimney lined with brick; height of chimney above lower grade bars is 180 feet, diameter of chimney inside lining is 11 feet 10 inches, the connection from boilers to chimney being made by a sheet-iron flume lined with brick. The temperature of the waste gases leaving the boilers was expected to be approximately 450° F., but in practice exceeded this limit.

FURNACES.

These furnaces are of the Dutch oven type, fitted with a combination of grate bars set above one another in a series of steps across the furnace, the angle of incline being 47° with the horizontal, and ordinary grate bars situated at the foot of the incline running lengthwise of the furnace. The furnace as originally made is 5 feet 9 inches wide, having 23 step-ladder bars, supported at foot by a heavy transverse bearer, which also supports the flat ordinary bars of 2 feet 2 inches length. The reducing of the grate surface was accomplished by building up the ash-pit on each side underneath the step-ladder bars to a width of 4 feet. Strictly speaking, this is not a reduction of great surface, since the surface for the reception of the fuel remains as originally designed, the actual reduction taking place in the air-passages through the bars; it is, however, at this stage more convenient to refer to the matter as a reduction in the grate surface.

On the top of the furnaces are situated the bagasse feeders, which are iron boxes connected to the shoots coming from the overhead carrier, and in which are placed iron flap-doors, so arranged that the opening to the furnaces for the delivery of bagasse can be adjusted at will. The bagasse being delivered from the inclined elevator from the mills, to the horizontal cross conveyor in boiler house, is then conveyed and

delivered into the longitudinal distributing conveyors over the furnaces. These conveyors have in the floor of the trough an arrangement of doors sliding across the trough, closing in the middle and opening both ways from the centre over each furnace, and operated from the firing floor; and by manipulating the opening of these doors the supply of bagasse to each furnace is regulated. Under each of these doors is a two-legged shoot, one leg delivering to the furnace feeder, and the other to the floor for surplus bagasse; a flap in the shoot, operated by a lever and chain, throws the whole or any part of the bagasse either to the furnace or the floor. The bagasse falls in a steady stream on the sloping grate surface beneath the outlet from the feeder, and rolls down the incline, burning as it falls, resting finally on the foot grates, where the most intense heat is generated, and where the ash and slag formed by the combustion of the bagasse remain until removal. The ashes and slag are removed from below the grate bars, and taken out through the air-passage to the furnaces underneath the firing floor.

The ranges of boilers are served by direct-acting plunger feeding pumps of ample capacity; there are two feed-pumps, to provide against accidents. These feed-pumps draw from a hot-well into which all the condensation throughout the house is returned; thus the feed water is distilled, and at a temperature of not less than 180° F. The feed make-up is taken from the condensation in the evaporator.

JUICE.

The juice expressed from the cane by the action of the crusher and mills falls into the receiving pan underneath the mill housings, and runs thence to an automatic screening apparatus, consisting of a chain elevator having slats which drag across a brass screen 14 inches wide and 10 feet long, pierced with 144 holes per square inch, holes about $\frac{1}{25}$ inch diameter; the screened juice falls through the screen into a receiving tank capable of holding 1,000 gallons, and is pumped from thence up to the juice weighing machine, which is situ-

ated over the liming tanks, on the same level as the vacuum pans, while the screenings are taken up by the slats and delivered back to the mill for recrushing. This apparatus is driven from one of the second motion shafts in the gearing of the mill. The juice then passes over the weighing machine, is weighed in parcels of about 400 lbs., sampled, and then dropped into the liming tanks, where it is treated with lime and other re-agents, and then pumped through a high-pressure heater, where it is brought up to about 230° F. under the corresponding pressure, cooled down to 205° F. in a tubular cooler, which admits of cold juice being pumped through in one direction while the hot juice is being pumped through in the opposite, the cold juice taking up the surplus heat in the hot juice, thus effecting an economy of heat.

After passing the heater, the juice is discharged into a series of settling tanks, where it is allowed to stand until the impurities settle out, when the clear juice is drawn off into a receiving tank for juice filters, and the settlings, after being diluted with water and further treated with lime and re-agents, are drawn off into a receiving tank for the filter presses, when the solids are finally separated from the clear juice they held back; the solids are discharged into the sewer to be mixed up with the irrigating water and used as fertilizer for the cane fields, while the clear juice is discharged into a receiving tank for the evaporator. The clear juice from the settling tank is passed through sand filters, which consist of cylindrical tanks, set on end, with an internal tube covered with fine wire gauze, and the remainder filled with ordinary sand, the juices percolating through the sand into the internal tube and thence to the receiving tank for evaporation.

EVAPORATING APPARATUS.

This is quadruple in effect, the first body which receives the thin juice being supplied with exhaust steam from the various engines in the sugar-house, under about 5 lbs. pressure. The steam given off from the thin juice in the first body is used in the second body to evaporate further the

slightly thickened juice coming over from the first body, and so on to the fourth body, which works under 27 inches of vacuum; this vacuum is produced by the condensation of the vapors given off from the syrup in the last body, a powerful vacuum pump being connected to the condenser to draw off air and uncondensable gases, which come over with the vapors from the juice, or, as it is now called, syrup. The juice, containing some 16 per cent. of solid matter in solution, enters the apparatus, and is discharged containing some 60 per cent. of solid matter; this syrup is pumped up to the receiving tanks for the vacuum pans, having lost in the operation about 75 per cent. of the water originally contained in the juice. The greater portion of this water, which is delivered by the evaporating apparatus in a pure state, is used for feed make-up for the boilers, for washing down tanks, filters, etc., and for diluting the settlings from settling tanks and molasses when being treated for reboiling, the surplus going into the sewer, and out on the fields for irrigation. The evaporator in use has a forced circulation for the juices and syrups between the various bodies, and is furnished with 538 copper tubes, 3 inches diameter by 7 feet 4 inches long, corresponding to 3,050 square feet heating surface in each body, or a total heating surface of 12,200 square feet, evaporating for every pound of steam taken into the first body approximately 3.75 lbs. of water out of the juice, and approximately 5 lbs. of water per square foot of heating surface in the four bodies.

The evaporating apparatus is of the type known as film evaporators, since the juice under operation showers down over the heating surface in a spray, the steam being inside the tubes. The circulation of the juice over the heating surface, and from body to body, is maintained by a series of centrifugal pumps, one for each body, all driven by a high-speed engine, directly connected to the shaft upon which the centrifugal pumps are mounted. The syrup is drawn off from the evaporator, and delivered into a receiving tank by the action of the circulating pump connected with the last body

of the apparatus; from the receiving tank an independent steam pump draws the thick syrup and forces it up to storage tanks of about 25,000 gallons capacity, situated on the vacuum-pan floor, and at such a height that they drain to the pans. These tanks serve a main-supply pipe to which each vacuum pan is connected.

VACUUM PANS.

These pans are each 10 feet 6 inches diameter, with a conical bottom, straight belt 15 feet high and dome-shaped cover, connected to the condensers by 48-inch cast-iron pipes, and are fitted with 1,000 square feet of heating surface each, divided over sixteen 2-inch copper coils, set 6 inches apart from coil to coil, and properly supported on iron beams, being held thereto by brass clamps; these admit of a certain amount of movement in all directions to accommodate the contraction and expansion of the coils. The coils are served by both live and exhaust steam, and drain into manifold pipes, whence the water of condensation from the steam used in the coils is drawn by pumps and delivered to the hot-well to be returned to the boilers. The delivery gate at bottom of pan is 30 inches diameter and is of the mushroom-head type, being operated by a worm and wheel from the upper platform, the final tightening being effected by a toggle operated by the same worm and wheel. The joint is made by a ring of hard rubber on the gate, which seats against a turned rim on the pan bottom; the ring is easily removed and replaced when worn, spare rings being carried in stock for that purpose. The pans are operated under 27 inches of vacuum, which is maintained by the vapors being condensed in a suitable jet condenser, to which is attached a powerful vacuum pump, the water used, together with the condensation of the vapors, escaping through a tail pipe out into the main sewer.

The cooked sugar, or massecuite, after being boiled and grained, is dropped into a receiving tank or mixer, to which are attached the centrifugal drying machines of the sus-

pended type, having baskets 40 inches diameter lined with fine brass screens, and revolving at 1,000 revolutions per minute. Each machine is charged by opening a gate in the bottom of the mixer, and allowing a quantity of the massecuite to run into the baskets of the centrifugal machines, which are kept at slow motion until sufficient material has been received. They are then brought up to speed in about a minute, the centrifugal force generated in the molasses driving it out through the screen, leaving the grained and dry sugar in the machine, which is then discharged through the bottom by raising a valve; the whole operation occupies about eight minutes, and the dry sugar recovered per charge is 400 lbs., so that each machine dries 3,000 lbs. of sugar per hour.

These machines are driven by Pelton water-wheels, 23 inches in diameter, mounted on the spindle just below the point of suspension, and are served by two nozzles delivering water under 180 lbs. pressure, one nozzle being to keep the machine at speed when attained, and the two nozzles to furnish sufficient pressure water to bring the loaded machine up to its maximum speed of 1,000 revolutions per minute in the space of about one minute. To effect economy of pressure water, after the maximum speed has been reached, one nozzle is shut off. The pressure water is furnished by one large direct-acting pump, delivering 1,000 gallons of water per minute into an air chamber 60 feet high. It is found that the centrifugal machines require water under the steadiest possible pressure to get the best results; the air-chamber is accordingly charged with compressed air at 60 lbs. pressure before the water-pump is started. This gives a very long air-cushion in the head of the stand-pipe under 180 lbs. pressure, which corrects the irregularities due to slight variations in the speed of the supply pump, and gives time for the pump regulator to act in slowing down or speeding up to accommodate the machine service.

After the sugar has been discharged from the centrifugal machines, it falls into a screw conveyor serving the battery of

machines, and is conveyed to an elevator which carries the sugar up above a large bin, holding about 100 tons of sugar; the warm sugar falls on the vanes of a rapidly revolving fan, which scatters the sugar all over the bin, breaking up the lumps, separating the grains of sugar one from the other and cooling it; the object of this is to improve its keeping qualities on the voyage from Hawaii to San Francisco or New York, it having been found that sugars bagged warm are more liable to deterioration on a long voyage than those treated as above. From the bin, which has an inclined bottom, the sugar is drawn off through spouts, then it is bagged, weighed, and stored for shipment. An economy in labor is also effected, as by the use of the bin one man bags and weighs 50 tons of sugar in ten hours, whereas when the sugar has to be shovelled into bags from the floor it requires three men to do the same work.

The above sugars, being made directly from the syrup, are known as No. 1 sugars, and the molasses given off in the drying process is No. 1 molasses, which, on leaving the centrifugal machines, is caught in a tank, where it is diluted with water to melt out any small grain that may have escaped through the screens, brought up to boiling point and pumped up to storage tanks on the vacuum pan floor; these tanks have a capacity of about 18,000 gallons, and are connected to the vacuum pans in the same way as the syrup tanks. This molasses is boiled in a vacuum pan to grain, and if it should be too poor in sugar, a little syrup is taken in with it to start a grain, and this grained molasses is then discharged into a similar tank or mixer to that used for No. 1 sugar, and dried in centrifugal machines of the same kind and size as those used for No. 1 sugar, but the resulting dried sugars are of a smaller grain and poorer quality, and cannot be operated upon in the same way as No. 1 sugars, and are therefore discharged on the floor, bagged, and weighed direct.

This sugar is known as No. 2, and rarely exceeds in quantity 25 per cent. of the No. 1 sugars. The molasses from

this sugar is known as No. 2 and is treated in tanks in a similar manner to the No. 1 molasses, being pumped up to storage tanks of 12,000 gallons capacity, and when sufficient has been accumulated, a boiling is made in one of the vacuum pans. This molasses is, however, very poor in sugar and requires special treatment to obtain the crystals, failing which it cannot be marketed; it is boiled to a density of from 83 to 88 per cent. of solid matter, depending greatly upon the character of the solids in solution, and is then discharged from the pan to a crystallizer, which is a tank 9 feet in diameter by 20 feet long, fitted with an internal shaft and stirrers. It has been found that when crystals of sugar are formed in a poor molasses, if they can be kept moving about in the solution, they take up more pure sugar therefrom than if they remain stationary. Consequently after the charge of molasses is in the crystallizer, the grain, which forms as the charge cools down, is kept in motion by the action of the stirrers, which revolve very slowly; after having been in process for a period varying from eight to sixteen days, all possible sugar has been taken up—a point which is determined by drawing off samples of the contents of the crystallizer from time to time and analyzing.

The crystallizing tanks are situated above the mixer and centrifugals and below the vacuum pans, so that a boiling of molasses descends by gravity to the crystallizer, and thence by gravity to the mixer.

This massecuite is dried in the same way and by similar machines to the other grades of massecuite, but the resulting sugar which is of too low a grade to ship, is drawn into the vacuum pan while boiling No. 1 sugar and is thus converted into No. 1 sugar. This is done by putting the low goods dry into a conical-bottomed tank connected with the vacuum pan by a short pipe and gate; by opening the gate, when the vacuum is on the pan, the dry sugar is drawn in and immediately mixes with the grain already in the pan. Care is taken that the grain in the pan shall be no larger than the grain to be drawn in, so as to avoid irregularities which

would tend to affect the market value of the produce. The molasses given off from the low goods from the crystallizer is carefully analyzed, and if so poor in sugar that it will not reboil, it is discharged over a weighing machine, and is either burned in the furnaces with the bagasse, fed to stock with their green food, or mixed with irrigating water and run on the land as a fertilizer; if of a good enough quality, it is mixed with No. 2 molasses and treated with it. Molasses has a definite calorific value, and careful observations have made it equal to bagasse as fuel. Three tons of bagasse, containing 45 per cent. moisture, are considered in the Hawaiian Islands as equal to one ton of ordinary Australian coal, consequently one ton of molasses properly burned is equivalent to one-third ton of ordinary coal. The burning of the waste molasses is accomplished in this factory by feeding it in thin streams on the bagasse as it is ejected from the last mill; the bagasse soaks up the molasses in a very finely divided form, and it burns readily and produces a very hot fire in the furnaces already described. The amount of molasses burned varies from 60 to 200 gallons per hour, depending upon the rate at which the waste molasses comes forward.

When the molasses is used for fertilizing purposes it must be dissolved in about fifty times its volume of water, otherwise it may destroy the plant; it is not considered a very safe proceeding, but applied with care there is no doubt of the value of molasses as a fertilizer on certain lands.

The finished product is divided into two grades, A and B.

Grade A includes all No. 1 sugar, and is high-class raw sugar, having a hard, clearly defined crystal, and of a purity of from 97 to 98.5 per cent. This sugar does not deteriorate in transit to market, if care in manufacture has been taken; as a rule it will dry out somewhat, losing slightly in weight, but this is compensated for by the rise in purity which is usually in the proportion of the drying out.

Grade B includes all low-class sugars, whether made from syrups or molasses; the crystal is soft, is not clearly defined, and the purity ranges from 93 to 96 per cent.; this sugar will

lose in weight and polarization in transit owing to the tendency to sweat and ferment, due to the poor grade of material from which it is made.

The sugars are put up in 125-lb. bags and are loaded at the sugar-room on flat cars, 200 bags to the car, for transit to the port, where they are loaded on scows from which they are shipped.

WATER SUPPLY.

As already pointed out, the water on this plantation is valuable for irrigating purposes, and in the design of this sugar factory care was taken to economize in this direction in every way possible. The level of water in the irrigating canal is 15 feet higher than the ground floor of the sugar-house; and as unnecessary pumping is undesirable, the condensers are all furnished with barometric columns or water legs, 40 feet long, so that the injection water drains away by gravity from the condensers, leaving for the air-pumps the work of drawing off the air and uncondensable gases given off from the syrups under operation. The water is brought down from the factory in a wrought iron pipe, 40 inches diameter, 2,000 feet long; at the buildings, this pipe is brought up out of the ground and carried through the building at 12 feet above floor level; a receiving cistern in the floor of the house, 15 feet deep and 12 feet diameter, was constructed, and a 24-inch sewer pipe was led out of this 8 feet below floor level; this sewer pipe discharges into an irrigation ditch 1,500 feet away, which happens to be at such a level that the sewer can be given fall enough to carry off the water used in the factory. Finally the condensers are situated at such a height that they have to lift water about 12 feet in vertical height, the injection pipe on each condenser being connected to the 40-inch main supply pipe; the water-legs of the condensers are all led into the cistern and carried down some 6 feet below the level of the sewer pipe, so that they are always sealed against the entrance of air; the height from surface of water in cistern to bottom of condenser is 34

feet, and since the condensers are operated under 27 inches of vacuum, this gives a sufficient fall to allow the injection water to drain away by gravity against the vacuum.

The reason that such a large diameter is given to the supply-pipe is to reduce the loss of head by friction to the lowest practicable point, since whatever head is lost in the supply-pipe due to friction has to be made up by the condensers lifting the injection water higher. Experience has proved that while theory shows that water can be lifted by a condenser 20 to 24 feet, when the condenser is serving a vacuum-pan or similar apparatus, 12 feet is the limit of lift that should be allowed, and then only under exceptional circumstances, because if the pan when boiling a sticky and intractable syrup or molasses should happen to get hot and lost its vacuum, it would be impossible to recover its position without cooling down, which would mean loss of time and difficulty with the product.

To provide against any such emergency, and also to provide pressure-water through the house, an 8-inch pipe-line is laid up to another irrigating canal, situated at a level of 300 feet higher than the mill site nearly 4 miles away; and from this pressure-pipe a 3-inch emergency pipe is led to each condenser, thus taking care of almost any emergency that may arise. To economize water still further, a pumping plant and pipe-line is arranged to return a portion of the water used in the factory back to the irrigating canal from which it is drawn. This pipe-line is 24 inches diameter inside, and is made of wooden staves banded together with iron hoops, and delivers into the canal, some 50 feet down stream from the point where the water enters the main supply-pipe. This was done because there are times during droughts when the water has to be distributed over great areas in order to keep the cane from drying up, but the plant is very seldom used, and was put in for insurance purposes.

ELECTRIC LIGHTING PLANT.

The factory is served by a 50-kilowatt Westinghouse gen-

erator, driven by a direct-connected Westinghouse standard engine; the full load of the machine is 400 amperes at 110 volts. There are eight separate circuits, each having its own switch on the switchboard; the plant is fitted with lightning arresters, automatic circuit breakers, and the most modern types of fittings. The wiring throughout the factory is of heavy insulated copper wire carried on wooden bolsters bolted to the steel columns of the structure; the factory is fitted with 700 incandescent lamps of 100-candle power on poles, 24 feet high, set at 75 feet apart, the light from the lamps being concentrated by conical hood reflectors, which direct the light downwards in a belt about 100 feet wide along the line of switches of the storage tracks. Incandescent lamps are used in preference to arc lamps, mainly because the small mechanism connected with the arc lamp would become deranged by a fine dust which prevails during the dry season, and which sifts into everything, causing in the case of arc lamps, a great deal of trouble to keep the gear clean and in working order.

ELEVATORS.

For the use of workmen in going from floor to floor, a hydraulic passenger elevator is fitted, reaching from the ground floor to the vacuum-pan floor, with a landing at the crystallizer floor. This elevator is worked by water from the pressure-pipe, which always has from 60 to 100 lbs. pressure available for use. An elevator for lime and stores is fitted on the outside of the building, reaching from the ground floor to the lime-room on the same level as the vacuum-pan floor, and is driven by belting and gearing from the shaft operating the crystallizers.

A well-fitted laboratory is provided on the filter-press floor, where the chemist is centrally situated.

REPAIR SHOPS.

These are situated in the buildings underneath the sand-filter floor, but the large roll-turning lathe is situated under

one of the 15-ton travelling cranes which span each mill-house. The machine shop is fitted with all modern tools, consisting of large and small lathes, shaper, planer, radial and pillar drill presses, bolt and pipe machines, and a full supply of bench tools, and is capable of dealing with any repair work that may be required for any part of the plantation. Carpenters' and blacksmiths' shops are situated in the buildings, while the repair shop for cane cars is situated outside in a shed which spans one of the tracks specially devoted for this purpose.

For the supplies of all kinds needed on the plantation a large warehouse is constructed in a convenient place; attached to this are the offices for storekeeper and timekeeper. Near the warehouse are situated a railroad platform and scales for the purpose of weighing out the carloads of sugar as they are hauled away from the factory, thus providing a double check on the sugar weights before leaving the premises.

The arrangements all through this plant are designed for making the greatest quantity of sugar in the shortest possible time, and with the least possible labor.

CONSTRUCTION.

The construction of this plant was practically begun in October, 1900; some clearing and excavations had been done previously, but a force of men, under the supervision of the superintending engineer, were actively engaged in this month, the arrival of material commencing in November, and in February, 1901, the foundations were far enough advanced to commence the erection of the buildings. The construction of the structural part of the buildings was completed in September, and in October, 1901, the sheet-iron covering for the roofs and sides of building was completed. The machinery commenced to arrive in May, 1901, and was immediately put in hand, the foundations and bolts having been made and set from special drawings. All the foundations throughout were made of concrete in the proportion of one barrel of cement,

five barrels of sand and six barrels of crushed rock, this amount of material making $\frac{1}{2}$ cubic yard of concrete. This was well rammed in boxes properly laid out, where foundations came above the floor line; two inches next the boxes were filled with fine concrete made of one barrel cement, three barrels of sand and four barrels of fine rock screenings, to give a good finish to the exposed foundations. All bolt holes were left 3 inches larger than the bolts, and were filled with cement grout when machinery was placed. Boiler settings were made of hard red brick with fire-brick linings; all fire-brick arches over furnaces and other places were made of specially selected brick put in dry, bricks being cut and fitted to radius required; fire clay was very sparingly used on the vertical linings; no stay-bolts of any kind were used in the brick work, the thrust of arches being taken up on heavy walls, and the boilers hang two inches clear of brick work in all directions, the space being filled up with asbestos packing. This method of construction permits the free expansion and contraction of the boiler without throwing any strains on enclosed brickwork, and has proved excellent.

The steam-pipes throughout the plant were made of lap-welded steel pipes tested at the factory to 500 lbs. per square inch. They were joined by heavy cast-iron flanges bored out, driven on to pipes which were then expanded into the flanges by riveting; the projecting ends of pipe were riveted down and cut off flush and straight. All elbows and tees are of cast iron, large sizes being flanged, and small sizes screwed. The piping itself is designed with free ends to avoid the use of expansion joints, the main pipe lines being solidly anchored near the middle of the buildings to convenient columns, and hung from the floor beams so as to be free to expand outwards from the centre. In one instance only an expansion joint was placed, as the ends of the pipe were locked between columns, and means for taking up the expansion at this point became necessary. The steam pipes are all covered with non-conducting jackets; the small sizes, from 4 inches diameter down, have magnesia covering one inch thick. The larger

pipes, up to 18 inches diameter, have air-space covering made of strips of wood one by one and a half inch laid longitudinally and three inches apart; over this was wire netting of one-half inch mesh, then layers of heavy manila paper, and the whole covered with cotton cloth and whitewashed.

The material used in the construction of this factory is as follows:—

Concrete in foundations and floors, 8,000 cubic yards.

Steel and iron in buildings, 3,000 tons.

Machinery, 2,500 tons.

Lumber in floors, etc., 250,000 feet, B. M.

Glass for windows and skylights, 8 tons.

Paint, 3,500 gallons.

Bricks in boiler settings and chimney linings, 500,000.

Railroad tracks in storage yard, 6 miles.

* * * * *

The erection of and connecting of pipes to the machinery was finished and the factory started on January 29, 1902. There were no hitches or accidents, and the factory has been in operation steadily ever since. * * *

HONOLULU'S DEVELOPING DRAMATIC AND MUSICAL TALENT.

[A Review of Theatrical Entertainments for 1904, written for the ANNUAL by Allen Dunn.]

HONOLULU, like all communities that lie aside from the beaten path of theatrical travel, has at times suffered from a dearth of professional amusement. While certain stock company organizations with repertoires of a dozen or so plays have in the past found it a convenience to take a short trip to the islands, these expeditions have not proven entire financial successes and only the holiday nature of the engagement, and perhaps the prestige

of having played in Hawaii, has induced managers to attempt to make an annual booking.

Reasons are not hard to find. The round trip occupies two weeks of constant expense without any income. The fares for the company of even ordinary size set a heavy mortgage on the receipts. The theater-going population of Honolulu, that portion of it which frequents amusements conducted in the English language, is limited, and three performances a week usually exhausts the supply. There have, of course, been exceptions. Ernest Hogan and his colored minstrels hold the record for attendance and receipts, but they were a novelty and second and third visits proved less and less fruitful. After a long famine of things theatrical there is usually a record turn out and the big attractions that touch Honolulu *en passant*, staying for only a few nights, are usually sure of good houses.

Managers claim that Honolulu audiences are hard to please and there is much truth perhaps in the statement that "novelties only" will make money. The first opera company, for instance, that visited the islands garnered many shekels though its entertainments were of indifferent quality. Following operatic combinations failed to achieve wealth so easily. Perhaps the real reason lies in the fact that Honolulu for its size is unusually cosmopolitan in the nature of its inhabitants. Trips to the mainland are frequent with an accompaniment of seeing the best offered in the amusement line, and the result naturally follows that while visiting entertainers are made welcome at the outset, they too often produce plays and operas that have been seen before under happier auspices and, although we cannot expect the best, we cannot help tiring of the mediocre.

Suggestions have been occasionally made that the players at the head of the professional tree would find adequate remuneration here, but cold figures show that unless the eminent player was ordered to Hawaii for his or her health, the visit would be a financial disaster. In first class companies salaries are paid under contract for every week of the season, regardless of ocean voyages or alternate performances; this not being the case with many of the organizations that have played here. If, for example,

Henry Miller, often cited as a possible visitor, should play here for two weeks at three nights a week at admission rates just thrice the regular size, or at \$5 for the best seat, to the full capacity of the opera house, he would still be, financially, a heavy loser, when comparing with his usual mainland receipts.

And, to clinch the argument, it has been definitely proven that no professional play can produce two full houses so that Miller would have to give six different performances, a feat that he never does on the mainland and with his regular company, (selected for individual parts) could not accomplish. There are few leading actors with the available repertoire and company. Mansfield, perhaps, could do it, but imagine Mansfield before the curtain on the last night, with expenses still ahead of the venture, telling the good folk of Honolulu, as is his wont, just what he thinks of the condition of his treasury and their responsibility concerning it.

Honolulu does of course get good attractions once in a while, but they are, and must be, traveling organizations en route between continents with fares already reckoned in the initial expense, to whom Honolulu is merely a stop over, a holiday jaunt where only local expenses are to be met, and the limited engagement enables the manager to count his receipts before the doors open, while the performances are themselves a sort of dress rehearsal for the company, welcomed as such by a conscientious stage manager.

Thus, like other somewhat isolated places, Honolulu must amuse itself by its own resources through the always popular form of entertainment which has driven ennui from many a colony, many a regimental post, many a town or cantonment along the byways of the world—"Amateur Theatricals." Every community has its prodigies, every village almost its boy or girl who has gone "on the road" in some capacity or other, and every community is self-congratulatory as to the talent in its midst, and to the professional who stays here merely for a while and is not therefore biased Honolulu seems signally blessed in this regard.

In the month of September there were two productions in

hand with entirely different casts, each lacking people who have been very lately prominent in other entertainments and yet having selected their principals from a long list of possibles, including clever amateurs who had not appeared for many months or made perhaps any bow to the local public as yet.

While Honolulu is familiar with entertainments of more or less elaboration under local effort, as witness the very credible performance of "Il Trovatore" at the re-opening of the Hawaiian Opera House by amateurs, of record in the Annual for 1897, it is only within the past year or two, however, that any decided measures bringing together the local talent have been carried out. Discoveries of clever singers and actors have been numerous in often unsuspected quarters, operas and plays have been staged in artistic fashion, while so great an impulse has the cult of Thespis sustained that "Alcibiades," a tragedy based on Grecian times and customs, came from the promising pen of an island born authoress, Miss Linda Schaefer, and, being performed, proved a well deserved success.

Passing in review the theatrical events of the current year, enjoyed by Honolulu, one finds that the amateur predominates.

In January Bizet's *Carmen* was given an elaborate and artistic production under the direction of Mrs. Annis Montague Turner, who has retired from her professional successes and now lends her valuable aid to the encouragement of local singers. *Carmen* brought forward Lot Sebastian Kaulukou, a young native Hawaiian, possessing an excellent baritone, much natural dramatic talent and a pleasing appearance. Under Mrs. Turner's able coaching he sang the Toreador's role in vigorous, pleasing style, and has since gone forth for further study, before seeking fame and fortune in the career of a professional opera singer. Miss Alice Campbell also appearing for the first time before the "foot-lights," charmed all ears with her excellent and sympathetic soprano, adding fresh laurels to those already gained by island born singers.

Bizet's brilliant orchestration was done full justice to by the Honolulu Symphony Orchestra, a purely local and amateur organization. Much of *Carmen's* dramatic success was undoubted-

ly due to the stage management of W. D. Adams, who from past professional experience, has proven a considerable factor in Honolulu amusements. Carmen was played twice.

In February Friedenthal gave two recitals, and "Hiawatha" was sung by the members of the Episcopalian Cathedral choir for the organ fund of that edifice. Gerard Barton, a recent acquisition, and a welcome one, to local musical circles, conducted the rendition. In March came a couple of Scottish entertainers, who delighted a fairly good sized house, with the winsome ballads "o' the land o' Scots," the concert being under the auspices of the Scottish Thistle Club, one of the local benevolent organizations. About the same time appeared an Australian diva, who delighted several audiences and has since created somewhat of a furore in California.

April proved a busy month in the production of Alcibiades, a dramatic episode told in spirited language; essayed by a feminine cast of characters. The dialogue proved lively, the actresses full mistresses of their roles and the spirit thereof, while the costuming and scenic accessories were excellently carried out. Alcibiades also, as is almost invariably the case with similar local entertainments, gave its handsome profits to a worthy beneficiary, in this instance the Kapiolani Maternity Home.

Next came three performances of Gilbert and Sullivan's "Pirates of Penzance" under the direction of the writer. Quite a little new talent, both with principals and chorus, helped to make the "Pirates" a musical and dramatic hit. The chorus work was particularly commendatory and the principals well chosen. The effective costuming was all of home manufacture, a departure from the usual procedure. Kappellmeister Berger's orchestra took charge of that phase of the production, which netted a neat sum for the organ fund of the Catholic Chapel of St. Augustine's, Waikiki.

Meanwhile another opera was in rehearsal, a strain on the available talent of the town which its singers proved capable of sustaining. Mr. Gerard Barton, already mentioned, organist of St. Andrew's Cathedral and musical instructor for Oahu College, had recently composed an opera which was bought promptly by

an Eastern syndicate and is to be presented to the public at large in the season of 1904-'05. A trial performance being a fine opportunity for a musician to size up the full harmonies of his creation, to criticise it as an entity, and add here, reduce there, polish or subdue; Mr. Barton realizing the musical possibilities of a Honolulu cast, determined to make this the scene of a first production. Assisted by Mr. Adams and by Mrs. Barton, whose brilliant accompaniments have done much toward the success of many affairs musical, the composer gave his first-born a brilliant setting. Much was expected of the piece and much realized. Bright, tuneful, up to date in plot, the *Ahkund of Swat* effectually delighted alike audience, singers and composer.

There is little doubt that the talent of this city, profuse as it is, owes much of its discovery, conservation and successful work to the congratulatory fact of the presence of such directors as Mrs. Turner and the gentlemen above mentioned. Much hard work, experience, ability and tact is needed in the production of amateur affairs, and Honolulu is happy in the possession of such competent overseers and designers. As the talent has increased so have the impressarios, but those mentioned are the pioneers of Amateur Theatricals in Honolulu.

Mr. Harry Couzens was responsible for a delightful production of "*Lady Ursula*," given in dainty style, and Messrs. James Dougherty and Hugo Herzer, themselves singers and actors of no mean ability, proved their directing powers in superintending "*Said Pasha*," played three times in September to record houses for the benefit of the Myrtle Boat Club. Here again new talent was to the fore, and the staging most elaborate in costume effects. A composition of A. R. Cunha's, an island born composer and a prominent figure in many entertainments, was given special interpolation.

Charley's Aunt came in the same month as a benefit for the Hawaii Yacht Club. The production was freely cited as the best purely dramatic amateur effort seen in Honolulu and was marked by almost professional smoothness, correct and detailed stage settings. The writer was the coach on this occasion besides playing the title role.

In November a big production of the "Spy," a military drama, was arranged for the National Guard of Hawaii. The militia-men themselves are prominent in its presentation, with drills and mock battles while the more experienced talent carries the leading roles.

In the musical entertainments the native Hawaiian has always been found a valuable ally and, aside from Mr. Kaulukou others have shown themselves possessed of powers beyond the ordinary. Among these may be mentioned both John and William Ellis with excellent voices, the latter's tenor being almost phenomenal in range, power and purity of tone. Visiting musicians have often lamented its lack of better training than Hawaii can afford, and liberal offers have been made to take its possessor to Europe for that purpose.

With professional entertainments this year, the star engagement was undoubtedly that of the "American Travesty Stars" at the Orpheum, playing the Weber and Field burlesque with the same company that had delighted San Francisco for two years. They played en route to Australia where they have met with considerable success.

Amateurism then seems the natural fount of Honolulu's entertainment, and with the strides made by its talent a high degree of attainment should be reached. The famous Bostonians, it may be remembered, graduated from an amateur company and the centralization of Honolulu singers and players in one or perhaps two clubs, operatic and dramatic, should in due time, with proper coaching from the capable producers already in the field, achieve excellence. Some such plan has already been mooted and may be carried out. In the meantime there are plays and rumors of plays already spoken of for next year.

READERS of early voyages cannot but be impressed at the small size of the vessels sent out on their various ventures, many of them on long voyages. This is markedly so in the early fur-traders sent into the North Pacific, which set forth almost simultaneously from India, China, England and Eastern ports of the United States. Not a few of these vessels ranged from 100 tons down to 50, and one at least registering but 26 tons.

ALGAE COLLECTING IN THE HAWAIIAN ISLANDS

By Josephine E. Tilden.

[From Postelsia, Year Book of the Minnesota Seaside Station.]

AFTER spending several summers in work on the coasts of Washington and Vancouver Island, in which region the algal flora is, for the most part, arctic in character, it seemed that a study of tropical marine and fresh water vegetation would be beneficial. Previously no special collecting of this sort had been done in Hawaii, so that the discovery of interesting, rare and new forms might be expected. Accordingly, a trip to this group of islands was planned.

The party, consisting of my mother, Miss Caroline M. Crosby and myself, left Minneapolis, April 30th, arriving four days later at Vancouver, where we went aboard the steamer *Miowera* in blissful anticipation of our first voyage on the Pacific. In reality, so far as we know, nothing of interest occurred during the following nine days. There were fierce bleak winds and threatening skies and wild swelling seas under the influence of which was lost all desire to study algæ, tropical or otherwise.

At the end of eight disagreeable days came one pleasant one. The sun shone and the air was deliciously balmy. * * * Strange looking sailing vessels and other craft were around us. Flying fish were abundant. Above all, land was in sight. Soon a hazy outline of mountains was made out. Diamond Head was distinguished; red hillsides and green valleys slowly became visible, and at last the fringe of cocoanuts on Waikiki beach. It was easy now to understand the nautical term "hug the shore," for we were all ready to embrace any form of soil that would allow a firm foothold. As we swung in towards the dock at Honolulu, we were not disappointed in seeing the naked Hawaiian boys swim out to the steamer ready to dive for pennies which the passengers threw over to them.

We, of course, looked for algæ around the wharf, but in vain.

The only sign of vegetation of any kind were the wreaths of flowers (*leis*) which the brown natives wore on their hats, around their necks, or carried in their hands.

Probably no visitor was ever disappointed in Honolulu. Passing through the streets, perhaps the thing that impressed us most was the number of ideally beautiful homes. The houses are not remarkable in themselves, but each is set in the midst of a grove of trees, shrubs and foliage plants. A hedge of *Hibiscus*, with its mass of scarlet, an arbor covered with the trailing vines and purple blossoms of the *Bougainvillia*, or a veranda or *lanai* festooned with the green and white *Stephanotis*, gave the color and variety needed to offset the predominating foliage green; for flower beds are rare in Honolulu. Glimpses of hammocks and tennis grounds made one feel that perhaps it was not worth while to spend so much time in labor. It was with regret that we turned our steps away from the city, for it was necessary to find a suitable collecting spot and begin work at once.

Having made a round trip journey over the Oahu Railway and Land Co. line, the only railroad on the Island of Oahu, we decided to locate our camp at the Waianae plantation, thirty-three miles west of Honolulu. The third day found us comfortably established in pleasant rooms. A large unused, well-lighted back room in the railway station building was given us for a laboratory. We made tables extending around three sides of the room out of trunks and packing boxes. In front of one window the microscope was set up for Miss Crosby, and at the other were my quarters where I could attend to my mounting and pressing. Certainly no more could be asked. It all seemed like a fairy tale. Our surroundings were perfect. Our new friends overwhelmed us with kindness. If only the algæ were forthcoming.

There was low tide early the next morning, and down to the beach we hurried. With a feeling of despair we scanned the rocks, for disappointment stared us in the face. To one accustomed to mammoth seaweeds of the Straits of Fuca, which aggressively compel attention, the Waianae beach seemed absolutely barren. But, finally, a little, odd-appearing plant was dis-

covered, and then a second, and down under a ledge of rock a bed of queer red bags, and, in a word, it was six weeks before we were able to stop collecting algæ on the shores of Waianae.

There was found to be very little difference between low and high tide, about three feet in reality, but the low tides were generally accompanied by high waves, so that it was always difficult to collect.

We used to rise at five, awakened by the horribly discordant lay of a clock with a Chinese alarm. After breakfast of rice, sweet potatoes, stewed mangoes or fresh cocoanut we hastened to the laboratory for our collecting aprons, pails and knives, and then were off for a two or three mile trip up or down the beach. Among the more conspicuous and common forms growing on the rocks here were the following: *Microdictyon umbilicatum*, with its curious net-like frond; the somewhat remarkable *Dictyosphaeria favulosa*; *Halimeda tuna*; *Caulerpa taxifolia*, looking like a *Lycopodium* prostrate and half buried in the sand; two interesting varieties of *Cladophora* which have recently been pronounced new by Herr Brand—*C. composita contracta* Brand and *C. montagnei waianeana* Brand. Incoming waves generally brought a supply of *Codium adhaerens* and *Codium tomentosum*, both of which are known as *aalaula* by the Hawaiians and used, uncooked, as food. In certain places were beds of the well-known *Padina pavonia*. *Hydroclathrus cancellatus* was a stiff, brown, perforated cushion. *Turbinaria ornata*, one of the most highly specialized types of the Fucacæ, bearing its fruit on short, stiff, umbrella-like branches, grew always just where the waves were so strong that no one could possibly reach it. Two species of *Sargassum*, growing together, extended over a wide area and were not seen again on the islands. The fronds of these, ground up into bits and mixed with raw fish torn into small shreds, formed a sort of salad very highly prized by the natives. Boiled with squid, they also regarded it as a great delicacy. The native name was *limu kala*. The red algæ were most common. *Asparagopsis sanfordiana* had the appearance of a little pink or flesh-colored pine tree, and, though most frail to the touch, it stood with ease the onslaught of the waves.

Wrangelia penicillata, a pretty, brownish-green, filmy, fern-like plant, grew in tide pools which were constantly replenished by dashing waves. Deep, shaded crevices in the reefs were lined with growths of the dark red rosettes of *Amansia glomerata*. Several species of *Galaxaura*, and *Liagora* were common.

Miss Crosby carried in her collecting apron a hammer and chisel, being always on the watch for lichens, and she used frequently to work among the rocks on the hillsides while I was being entertained in the tide pools below. .

Quite often we would eat a very early breakfast, get our collecting implements into one of the trunks and prepare to take the first train for some other plantaion. On the morning of June 2nd, for instance, our destination was Aiea. At ten minutes past seven we boarded the first passenger train going towards Honolulu. For a distance of eight miles the road skirts the shore and then turns landwards or *mauka* through rice and sugar plantations, Ewa Mill, Waipahu, Pearl City. We reached Aiea at eleven minutes past eight. Like all rice fields in Hawaii, this one is worked entirely by Chinamen, they alone being able to endure the conditions of location and climate necessary for the cultivation of this cereal. On one side of the railroad track was the broad, muddy inland lake or bay of salt water, Pearl Harbor; on the other side were the terraced plots or fields, flooded to a depth of several inches with water and separated by narrow raised earthen ridges on which the careful Chinaman doubtless succeeded in walking, but which many times proved treacherous to our unsteady feet. A rice plantation, laid out as it generally is on the low flats at the foot of a valley, where mountain streams empty into the sea, is an ideal collecting ground for certain kinds of algæ. While the rice plants are growing and until they are mature, they are kept under water which is not stagnant or sour, but which flows off gradually and is constantly renewed. The almost stagnant ponds, the sluggishly flowing streams in the ditches and the muddy banks all have their peculiar inhabitants.

The reward of the morning's work was some very interesting things. Floating in the somewhat brackish water of the outer, larger ditch, nearest the beach, were found soft, corrugated

mosses, bright blue-green in color, *Aphanothece prasina*. Here also were tangles of the narrow cylindrical fronds of *Enteromorpha intestinalis*. Farther back in one of the plots, among the roots of the rice plants, was an abundance of fruiting *Chara*. Living with it was the familiar and omnipresent *Hydrodictyon reticulatum*. One entire terrace, higher and somewhat drier than the others, was covered with the pale brown silky masses of *Conferva sandwicensis*. Another single plot was in the possession of *Glæothece fuscolutea*, whose soft, blue-green, gelatinous colonies floated in extensive layers on the surface of the water. * * *

There were many other early morning rides through sugar and rice plantations, and we frequently beheld sights that caused us to rub our eyes and suddenly ask each other if we were really experiencing this life, or only dreaming. On sugar plantations there were big irrigating ditches, sometimes flooded, sometimes dry for several days. *Oscillatoria*, *Phormidium*, *Anabæna*, *Pithophora* and *Cladophora* flourished here. While collecting in such places we were always surrounded by a crowd of onlookers, of various colors and degrees of intelligence. It was Miss Crosby's self-appointed task to interest these visitors and keep them from "bothering." In her explanations of various things she often got her hearers wild with enthusiasm, and she learned to speak "pigeon-English." The Hawaiian name for algæ was "limu," and we were therefore called the "limu ladies."

Sometimes we would all three of us go off for a stay of several days at a more distant place. We spent four days at Waikiki beach, where numerous new marine forms were picked up from the "wash." Both here and at Waianae we had many opportunities of seeing surf-riding, by native men and boys. The surf board is shaped like an ironing board, about two feet wide and nine feet long. The man swims out to smooth water, selects a wave of the right kind and mounts his board. It receives the momentum of the surf and he rides in on the surface of the water and is landed safely on the beach.

Several days were spent at the hotel at Waialua, by the sea, and, though camping out and roughing it have their charms, we

thoroughly enjoyed our stay at this place, Haleiwa, "beautiful home." We shall always remember the wide, pleasant verandas, the charming surroundings and the good times we had there. Like all Hawaiian hotels, there are cottages attached to the main structure for those who prefer them to the inside rooms. Each room is fitted with electric lights and telephone connections. It was great fun to telephone our wants to the office and then, looking out of the window, perceive a nimble Japanese servant come skipping through the grounds to attend to us, always in the politest and most satisfactory manner possible.

At one time we made a visit of ten days to a private plantation on the northeast side of Oahu, and it was with the greatest difficulty that we could make up our minds to leave it. After finishing our work in the afternoon we used to sit on the grass under the cocoanut trees until time to go in bathing. In the evening we had dinner coffee on the veranda, and our host read aloud, or we talked. It certainly was anything but easy to do our regular work here. In addition to rice fields and taro patches, here were all sorts of fruit orchards, and a large number of curious introduced plants from Australia and Asia, besides an interesting family of the sacred Chinese cattle.

One day we visited the Kaliuwaa falls at the head of the valley by the same name, attended by three of the sons of our host and guided by an interesting old Hawaiian. At first we followed the dry bed of the stream, and afterwards, reaching water, we did some difficult scrambling over stones and boulders and wading through deep holes. On our way we frequently refreshed ourselves with guavas, which are yellow on the outside like a lemon, and rose-pink on the inside, and which one eats, skin, seeds and all, and then wants more. The mountain apples were as beautiful in appearance, but are quite insipid to the taste. The algal finds consisted of a species of *Stigeoclonium* one or two feet in length; a *Scytonema* in dark reddish layers on stones in the stream. With it were tiny, blue-green cushions of a *Tolythrix* and a *Nostoc*. When the falls were reached we were instructed by our companions to make an offering to the goddess of the waterfall, which we did in true Hawaiian style, building

a tiny pile of stones on one or two large leaves, and so made ourselves safe from falling stones, which otherwise, we were assured, would strike us. On the sides of the cliff washed by the spray of the waterfall, among mosses and liverworts, was found what seemed to be a *Nostoc*, but which turned out to be *Aphanothece nagelii*. After a hard upward scramble among lantana patches and on the exceedingly slippery dried grass of the mountain side, we were taken to view a sandal-wood tree, of which few are now to be found on the islands. Some of the roots, twigs, berries and leaves were taken, and we also found some fine specimens of aerial roots of the screw-pine and some ti plants.

June 27th we embarked on the *Kinau* for the Island of Hawaii. This voyage is compared, by those who know, to the crossing of the English channel. It is unnecessary to say that we privately relinquished all hope of seeing Paris. At certain times during this trip a kind steward is wont to visit the different staterooms and groups of people announcing that the sea may be "a bit choppy" for the next hour or two.

At 11 a. m. the steamer stood off Mahukona, and the sailors prepared to transfer the freight in small boats, because there is no dock. Realizing that our condition would be much relieved by so doing, we induced the captain to allow us to land. It being at the time of low tide, we examined the rocks for seaweeds, and for the first time made the acquaintance of *Ahnfeltia concinna*, a succulent, brittle, brownish-red seaweed, afterward found to grow in abundance on the rocks of Hilo harbor, at Punaluu and Pahala, therefore probably extending entirely around the Island of Hawaii; though as far as I know, not growing on the rocks of either Oahu or Kauai. Since the plant is so common along these shores, and of considerable size, it is easily distinguished by any one enough interested to look out for it.

We found Hilo to be very delightful and quite different from Honolulu, except in the people, who were just as kind to us and made our stay with them as happy as did our friends in Oahu. As soon as we were nicely settled, we made ready for the journey to Kilauea, thirty-one miles from Hilo. The four-seated

stage, drawn by four horses, was comfortable and the road as fine as the government roads in our own Yellowstone Park. Along the way, after we had reached the dense forest, many new plants were noticed. *Datura arborea*, in full bloom and fragrance, was passed. The most striking feature of the landscape was the bird's nest fern, *Asplenium nidus*, perched among the branches of the screw-pine and other trees, looking, as its name implies, like the home of some gigantic bird. Other smaller perching plants, mostly ferns, mosses and liverworts, clothed tree trunks in the greatest luxuriance. *Ophioglossum pendulum* was collected here. This was also our first opportunity of seeing the tree ferns. The journey occupied about six hours' time. Arrived at the Volcano House, and having immediately made the four mile trip to the volcano, we turned our attention again to the algæ. It was hoped that there might be hot spring forms in the neighborhood, and, on gazing into the depths of steaming crevices, we were able to see evidence of blue-green coatings on the rocks below. But the sulphur fumes were too suggestive, and it did not seem desirable to pursue investigation further. So the only algæ collected at Kilauea was a poor little undeveloped *Hormiscia*, which grew as a bright green crust on dirt and stones under dripping tanks back of the Volcano House. This is at an elevation of 4,000 feet.

Owing to a runaway, I believe, stage connection between the Volcano House and Pahala, a plantation on the south shore of the island, was interrupted. After frantic efforts to make our meaning clear to sundry parties in Pahala, we at last got the ear of a kind-hearted white man who promised us a team and driver to drive us down. We thought our troubles ended, but the next morning found us three women with a trunk of collecting supplies, occupying a stage drawn by a white horse and a black mule and driven by a native boy of about eighteen years. At first the road was not very bad, but inside of a few miles it became frightful, and cannot be adequately described. We were in a most ludicrous situation, had it not been so dangerous. Never were all four wheels on a level. A front wheel would pass over a large block of lava while a hind one was dragging

through a deep hole, and this continued through a constant and decided decline for a distance of twenty-three miles, with variations in the sizes of holes and lava blocks. The animals were not matched in their manner, temper, or gait. The horse held back, the mule pulled sturdily forward. As a result the carriage at brief intervals swerved from the "trail," the driver always waking up just in time to back away from some yawning precipice, while the cold perspiration stood on our brows. For more than twelve hours we clung every minute to the seats to keep from being thrown from the carriage. The jolting and shaking were terrible. To keep up our spirits we sang, even descending in our misery to "Sing this round over and over again"; but this only served to attract the attention of the driver and he paid less heed than ever to his horses. We were very hospitably entertained by Mr. L. Chong, a Chinese cane planter, who did everything possible for our comfort.

We had planned to visit Punaluu, seven miles away, on the seashore, by going on the plantation train from Pahala. Greatly to our disappointment we found that the "Fourth of July" celebration also included the third, and no trains would run. Finally, through the aid of one of our new found friends, a Portuguese was induced to take Miss Crosby and myself down at seven the next morning, on a car run by gravity. It was something like a hand car, but had only a platform, two seats and four wheels. We thoroughly enjoyed being whizzed over the high and shaky trestle-works and around sharp turns. I think the man went slower than usual, for sometimes the car stopped on an upward incline, and then he had to get out and push. If there was any danger it did not trouble us, and we jumped off at Punaluu with our botany can and press, with a feeling as of descending from the clouds. I believe now that we would have accepted an invitation to go somewhere in a balloon, provided we were promised an opportunity for collecting algæ when we got there.

During our day at Punaluu there was but one drawback to our happiness, and the question haunted us—how were we to return to Pahala? But we managed to explore a large area of

the shore, and found an interesting spring, called Kauila, long held sacred by Hawaiians, and in which we found various forms of *Conferva*; *Oedogonium* and *Cladophora*. With the help of a native man and woman who were able to swim out and collect algæ on a rocky point, clinging there when the waves washed over them, we got quite a few new salt-water forms. At four o'clock in the afternoon a boy appeared on horseback, leading two saddled horses. Mr. Chong had helped us out of our dilemma in this way. However glad we were to accept his kindness, it was a case of falling from the frying pan into the fire, for at least one of us had never been on a horse's back before. Our party was soon increased by a lonely Japanese on a small nag. In this way we made the uphill ride of seven miles, and were not thrown or killed in any other way. But Hawaiian horses do not seem to understand the American use of the reins. We were told that to hold the reins tightly would make the horse gallop, to do something else would make him trot, and so on, but we never learned what to do to make him stand still, or to go to the right or left, or to stop standing on his hind feet. In fact, to tell the plain truth, I never dared touch the reins at all, but held on with both hands to the front of the saddle. On the contrary, I am sure that Miss Crosby *did* hold the reins, for her horse was always turning round and round, or pawing with its front feet in the air, or galloping, and when I caught up with her she would say that she was tired of walking and had just taken a little canter. We came into Pahala in the midst of the horse-racing festivities. The plantation hands had decorated the one street with their national flags and red and yellow buntings and many gay-colored lanterns, and were plunging madly back and forth on their fastest steeds. Imagine our dismay at being led through this gay scene by our two cavaliers; but there was no help for it, and one of the two horses suddenly became alive to the fact that something was going on, darted forward and ran under a low flume, thereby nearly wiping his rider from the saddle.

The next day being the "Fourth," we celebrated by walking straight from Pahala to the beach, over four miles of the rough-

est pahoehoe lava. As the shore rocks were steep and high, we were not able to do much collecting, but the booming of the waves was wonderful, and except that sound there was perfect silence. We felt that we were standing on a very young earth and were seeing, as it were, the first attempt of nature to clothe a new land with vegetation. The flow is quite a new one, and one or two species of lichens, a fern and a flowering plant were the sole occupants of the bleak looking waste. The number of plants grew more and more abundant as we left the beach, but were still restricted to these few species for about two miles.

By the next morning our courage had come back, and at six o'clock we were on our way back to the volcano with the same terrible road, driver, team and carriage as before. We had thought it impossible to take that drive again, but it was our only alternative unless we wished to remain in Pahala forever. It was really not quite so bad going up as it had been coming down. We had dinner that night at the Volcano House and at 2:30 a. m. were aroused to take the stage for Hilo, where we arrived at ten o'clock in a dilapidated condition. The three sudden changes, from the dry heat of Pahala, to the icy rains of Kilauea, and then to the damp, sultry heat of Hilo, were too much for us and we were all more or less prostrated for some hours. On July 7th, we walked eight miles to and from the upper falls of the Wailuku river, where we found a *Lyngbya*, two *Oscillatorias*, a *Scytonema* and an *Oedogonium*.

Our next trip was along the northeast shore of Hawaii to the Waipio valley, sixty-five miles from Hilo. This time we had a comfortable two-seated carriage, a pair of good horses and a Japanese driver. The roads were in excellent condition and the scenery wonderful. This coast is made up of bold precipices, so that marine collecting had to be given up, but the conditions for the growth of fresh-water algæ were very favorable, as there is a heavy rainfall in this section and running streams and dripping cliffs are numerous. As these rivers cast themselves into the sea from the high rock walls, beautiful cascades are formed, which can be plainly seen from the deck of the *Kinau* if one is interested in looking out. I believe that between Hilo

and Waipio valley there are about ninety-seven gulches, each one causing a deviation in the road from a quarter to a half of a mile, and meaning a long downhill and a corresponding long uphill ride on the opposite side. Our driver could *talk* absolutely no English except to swear dreadfully, and did so very deliberately whenever the horses balked. This occurred at the foot of each hill, presumably because it was here that he invariably applied the brake.

In the mouth of Hakalau stream a *Stigeoclonium* grew attached to pebbles. It was said that the Hawaiians used it for bait for mullet, which would not bite at any other substance. Some fine desmids were also gathered from cliffs under dripping water in Hakalau gulch. Farther on, at Laupahoehoe, some dark brownish globules, *Nostoc* thalli, were picked off the mosses on wet cliffs. On these cliffs were also found a dark blue skin, a *Cylindrospermum*, and a gray slimy coating which proved to be *Glæocapsa quaternata*. At Kukuihaele we made a stay of several days. From here we explored the lovely Waipio valley and the mountain streams. In a taro patch was found *Anaboena variabilis*, some *Chara* and diatoms. A memorable trip was our horseback excursion up the mountain trail to the head waters of the mill flume. My horse ran away before I was on him five minutes, and Miss Crosby's stood on his hind legs most of the time, but, partly because we were assured they were the gentlest horses on the plantation, and mainly because we were so delighted with the luxuriance of ferns and mountain trees, we got the better of our first fright and did our ditch jumping and slippery climbing with comparative ease. When the horses could go no further, they were tired, and we went the rest of the way on elevated flumes—wooden ditches about two feet wide and one foot deep, some of them twenty-five feet from the ground. On the boards of the flume were attached the fronds of *Nostoc commune*, and in the falls of the stream were beds of small, black, shot-like balls, *Nostoc verrucosum*. Before going back to the horses we gathered specimens of eight or ten new ferns, among them *Psilotum triquetrum*, and some tree lobelias, shrubs three to six feet high, with very large flowers.



GREEN LAKE, PUNA, HAWAII.

July 17th found us back in Hilo, and we were soon on our way to Puna district, where we wished to work in the vicinity of Green Lake. The house and grounds of our host occupied the level crater of an extinct volcano, now completely carpeted with grass. In a second crater, quite near to the first, was the sheet of water known as Green Lake. In this there was found to be little except a few desmids and *Cladophoras*. We had heard of a warm spring in this neighborhood, and the next morning made a search for it. The water was not particularly warm, being only 31° C. at the time we took a reading, but several good things were growing in the water, and we were glad to find them. On the way back to Hilo we stopped several times to examine the shallow pools scattered about in the pa-hoehoe, and in most of them fine desmid material was found.

Another short excursion was made from Hilo. We were rowed in a whaleboat by four big Hawaiians down the shore a few miles to "Sekonet," where conditions were considerably different. A number of lagoons are just inside the shore line on the beach and in these were an interesting *Monostroma* and some other forms peculiar to brackish water.

Again we consigned ourselves to the mercy of the *Kinau* and returned to Honolulu to store the collections accumulated from Hawaii. With a fresh supply of preserving cans and drying paper, but with waning ambition, we went aboard the little *James Makee*, which carried us to the Kealia plantation and Kapaa beach, on the Island of Kauai. It being vacation time, we were given the teachers' cottage, and kept house by ourselves again. The marine flora here resembled very much that of the western shores of Oahu, and was totally different from that of Hawaii. We were able to collect again at low tide. There was an abundance of *Bryopsis*, *Caulerpa*, *Amansia* and some *Dictyota*.

Having secured a good Japanese driver and a carriage we started on a journey to the most northern point of the island. The roads were in good condition, we had very pleasant weather and thoroughly enjoyed every moment of the drive. At Hanalei we collected on the coral reef, where two species of the

interesting seaweed *Martensia*, were secured. This had not been seen at any other point. In some rice fields there were found *Pithophora* and other chlorophyceæ. From here we drove back to Kapaa and on south to Nawiliwili, one of the most southern points of the island. We stayed at this place all day with nothing special to do. Dined at a Chinaman's on mince pie, sorghum and bread, bought up all the Hawaiian fans, mats and baskets we could find, besides a quantity of polished cocoa-nut calabashes, and collected the third species of *Sargassum* known from these islands, *S. polyphyllum*. After a weary wait we were picked up in the afternoon, along with a drove of sheep, and carried in a small boat two miles out to sea, where the steamer *W. G. Hall* lay rocking frightfully. Without going further into detail, we reached Honolulu next morning, where a few days were spent in putting away the preserved specimens in trunks, seeing to the soldering of large tin vessels and having packing boxes fitted up. It was extremely difficult to take care of the specimens preserved in formaline, which were in tin cans, for the salt in the air and water caused the tin to rust very quickly, and all vessels had to be soldered and resoldered during the time we were in the islands.

On a certain dark, rainy night at nine o'clock we said a reluctant good bye to our kind Honolulu friends, and went out on a tugboat to the *Aorangi*, up whose dark looming sides we had to climb on a swinging ladder. In two weeks more we were back in Minneapolis. Every can in the collection was leaking, yet all specimens came through in perfect condition.

A WRITER in an Eastern journal recently sought to identify John Jacob Astor with the discovery and controlling interest for years of the sandalwood trade of the Hawaiian Islands. In Astor's reply to Hon. John Quincy Adams' enquiry for particulars of his Pacific Coast ventures he mentioned the several vessels he had sent forth, or through the Pacific Fur Company, he was interested in, that touched, or was lost here, the earliest of which was in 1809, but no mention is made of participating in trade between these islands and China, nor any reference to sandalwood whatever. This trade was almost in its zenith when Astor's ships visited the islands, as may be seen in an article thereon in this issue.

THE LEGEND OF KANEUKAI

As Related by Residents of Waialua District, Oahu.

LONG ago, when the Hawaiians were in the darkness of superstition and kahunaism, with their gods and lords many, there lived at Mokuleia, Waialua, two old men whose business it was to pray to Kaneaukai for a plentiful supply of fish. These men were quite poor in worldly possessions, but given to the habit of drinking a potion of awa after their evening meal of poi and fish.

The fish that frequented the waters of Mokuleia were the aweoweo, kala, manini, and many other varieties that find their habitat inside the coral reefs. Crabs of the white variety burrowed in the sand near the sea-shore and were dug out by the people, young and old. The squid also were speared by the skillful fishermen and were eaten stewed, or salted and sun-dried and roasted on the coals.

The salt likely came from Kaena point from salt water evaporation in the holes of rocks so plentiful on that stormy cape. Or it may have been made on the salt pans of Paukauwila, near the stream of that name, where a few years ago this industry, on a small scale, existed.

But to return to our worshippers of Kaneaukai. One morning on going out upon the sea-shore they found a log of wood, somewhat resembling the human form, which they took home and set it in a corner of their lowly hut, and continued their habit of praying to Kaneaukai. One evening, after having prepared a scanty supper of poi and salt, with perhaps a few roasted kukui-nuts as a relish, and a couple of cocoanut cups of awa as their usual drink, they saw a handsome young man approaching, who entered their hut and saluted them. He introduced himself by saying, "I am Kaneaukai to whom you have been praying, and that which you have set up is my image; you have done well in caring for it."

He sat down, after the Hawaiian custom, as if to share

their evening meal, which the two old men invited him to partake of with them, but regretted the scanty supply of awa. He said: "Pour the awa back into the bowl and divide into three. This they did and at once shared their meal with their guest.

After supper Kaneaukai said to the two old men, "Go to Keawanui and you will get fish enough for the present." He then disappeared, and the fishermen went as instructed and obtained three fish: one they gave to an old sorceress who lived near by, and the other two they kept for themselves.

Soon after this there was a large school of fish secured by the fishermen of Mokuleia. So abundant were the fish that after salting all they could there was enough to give away to the neighbors; and even the dogs had more than they desired.

Leaving the Mokuleia people to the enjoyment of their unusual supply of fish, we will turn to the abode of two kahunas, who were also fishermen, living on the south side of Waimea valley, Oahu. One morning, being out of fish, they went out into the harbor to try their luck, and casting their net they caught up a calcareous stone about as large as a man's head, and a pilot fish. They let the pilot fish go and threw the stone back into the sea. Again they cast their net and again they caught the stone and the pilot fish, and so again at the third haul. At this they concluded that the stone was a representative of some god. The elder of the two said: "Let us take this stone ashore and set it up as an idol, but the pilot fish we will let go." So they did, setting it up on the turn of the bluff on the south side of the harbor of Waimea. They built an enclosure about it and smoothed off the rocky bluff by putting flat stones from the immediate neighborhood about the stone idol thus strangely found.

About ten days after the finding of the stone idol the two old kahunas were sitting by their grass hut in the dusk of the evening, bewailing the scarcity of fish, when Kaneaukai himself appeared before them in the guise of a young man. He told them that they had done well in setting up his stone

image, and if they would follow his directions they would have a plentiful supply of fish. Said he, "Go to Mokuleia, and you will find my wooden idol; bring it here and set it up alongside of my stone idol." But they demurred, as it was a dark night and there were usually quicksands after a freshet in the Kamananui river. His answer was, "Send your grandsons," and so the two young men were sent for to get the wooden idol and were told where they could find it.

The young men started for Mokuleia by way of Kaika, near the place where salt was made a few years ago. Being strangers, they were in doubt about the true way, when a metor (hoku kaolele) appeared and went before them, showing them how to escape the quicksands. After crossing the river they went on to Mokuleia as directed by Kaneaukai, and found in the hut of the two old men the wooden idol. They shouldered it, and taking as much dried fish as they could carry, they returned by the same way that they came, arriving at home about midnight.

The next day the two old kahunas set up the wooden idol in the same enclosure with the stone representative of Kaneaukai. The wooden image has long since disappeared, having been destroyed, probably, at the time Kaahumanu made a tour of Oahu after her conversion to Christianity when she issued her edict to burn all the idols. But the stone idol was not destroyed. Even during the past sixty years offerings of roast pigs are known to have been placed before it. This was done secretly for fear of the chiefs who had published laws against idolatry.

Accounts differ; various narrators giving the story some embellishments of their own. So good a man as a deacon of Waialua in telling the above seemed to believe that, instead of it being a legend it was true, for an old man, to whom he referred as authority, said, that one of the young men who went to Mokuleia and brought the wooden idol to Waimea was his own grandfather.

Pelekane, an aged resident of the locality, gives this version: Following the placement of their strangely found stone

these two men dreamt of Kaneaukai as a god in some far-distant land, to whom they petitioned that he would crown their labors with success by granting them a plentiful supply of fish. Dreaming thus, Kaneaukai revealed himself to them as being already at their shore; that the stone which they had been permitted to find and had honored by setting up at Kehauapuu, was himself, in response to their petitions, and since they had been faithful so far, upon continuance of same, and offerings thereto, they should ever after be successful in their fishing; and as if in confirmation of this covenant, this locality has ever since been noted for the periodical visits of schools of the anae-holo and kala, which are prevalent from April to July, coming, it is said, from Ohea, Honuaula, Maui, by way of Kahuku, and returning the same way.

So strong was the superstitious belief of the people in this deified stone that when, some twenty years ago, the then road supervisor of the district threw it over and broke off a portion, it was prophesied that Kaneaukai would be avenged for the insult. And when shortly after he lost his position and removed from the district, returning not to the day of his death, and that several of his relatives have met untimely ends, not a few but felt it was the recompense of his sacrilegeous act.

INTRODUCTION OF PERFUMERY.

The Hawaiians' first acquaintance with perfumery was evidently through the early visits and trading of the Russians from the Northwest coast, or the other earlier visiting fur-traders from there en route to China, or probably the Russians themselves in their visits here, 1814-16.

Hawaiians of fifty or more years ago showed a marked preference for musk as a perfume, either in its extract preparation or solid forms, and the name "lukini," applied thereto, leads to the impression that it was introduced to their attention as above stated, in the early part of the last century, for Lukini is Hawaiian for Russia, or Russian. In no other way can we account for the reason why the extract of musk should be termed "wai lukini" (Russian water) and its crude or solid form should be called "hua lukini," (Russian seed, or fruit; a something productive), were it not the fact that they—the Hawaiians—identified it with the Russians as an article of trade, or a product of their country.

It is said that at the present day the natives will not touch it, so changed have become their taste for perfume.

ON HAWAIIAN DUPLICATED PLACE NAMES.

DOUBTLESS the question comes to mind occasionally with all students of Hawaii, her land and people, as to the cause of, or reason for, the repetition of place-names frequently met with throughout the islands; and like query possesses many new comers at the various meanings for many words of like spelling and pronunciation. To some the idea is suggested of a poverty of the language, though Hawaiians resent the imputation with some warmth, and instance the fact that they have over thirty names for the rain, while the various winds around the Islands, mentioned in the legend of Pakaa, embrace eighty-five. Others consider the repetition of place-names as largely indicative of the sentiment of the people in their changes, like names identifying the connection in the settlement of families moving from one place to the other. Others again look upon it as simply a matter of coincidence.

Certain names are used alike on several of the islands for some evident reason, like *Kona* for the southwestern district in the Islands of Kauai, Oahu, Molokai and Hawaii, which is said to apply from the southerly storms of the same name prevalent during the winter or rainy months to which this district in the above-named islands are exposed; though Maui and Lanai have like exposures to kona storms, but have no such named district.

Similar reasoning doubtless led to the ancient adoption of *Koolau* for the windward district of the Islands of Kauai, Oahu, and Molokai, from their like exposure to the regular "trade winds," and *Hamakua* for the same relative district of the Islands of Maui and Hawaii, but the application—according to present day usage of the language—is not so readily seen, although in the latter one can find "open breadth of country" on the northeastern slopes of Haleakala, Maui, and Mauna Kea, Hawaii, alike appropriate, to which the term *Koolau* would by no means apply. The windward districts of this name differ topographically from

the others in that they are precipitous; abounding in palis, which no great stretch of imagination may appropriately term a "wind-brace." [*Koo*, a prop or brace; *lau*, a wind.—See Andrews' Dict.]

This would seem to favor the idea of appropriateness in some manner or form as a primal cause, and in an article on Hawaiian place names in the *Annual* for 1901, by that excellent authority, C. J. Lyons, the same idea prevails and may be accepted as the probable cause originally observed, though numerous departures from the rule throughout the Islands are apparent enough to require explanations that would be alike interesting and instructive, and this questioning comes to mind at the duplication, or more, of names found at times on one island, though more frequently on different islands, where conditions, topographically and otherwise, can by no means convey similar impressions to the mind.

A list of a number of these names found repeated, with their localities, given herewith, may serve the double purpose of illustrating this subject and enlightening some readers on the geography of the territory.

Kilauea, the name of our famous volcano, on Hawaii, is also the name of an extensive land division and village on the Island of Kauai.*

Waimea, an important village and historic point of interest on Kauai; the scene of Cook's first landing at these islands, and place of battle in dislodgement of the Russians from their erected fort and expulsion by the natives, finds a namesake on the Island of Oahu, in a small picturesque valley in Koolauloa, and it was for ages, also, the name of Hawaii's inland town and plains at the base of Mauna Kea, till the postal authorities at Washington, D. C., changed it to Kamuela, which kamaainas ignore save in its forced use under mail regulations.

*An ancient Hawaiian tradition of the secret of the origin of fire being obtained from the Alae (Mud-hen), states that it occurred ages before the advent of Pele, Goddess of the Volcano, in these Islands, whose fires were first seen at Kilauea, Kalihi, Kauai; afterwards at Alia, Moanalua, Oahu; then at Haleakala, Maui, and finally at Kilauea, Hawaii.

Kailua, a shipping port of Kona, Hawaii, famed as being once the place of King and court and the landing point of the first missionaries in 1820, is also the name of a place in Koolaupoko, Oahu.

Waialua, a district and village of Oahu, is the name, too, of a division of land on Molokai, and also in Waihee, Maui.

Wailuku, a principal township of Maui, has its namesake in an important stream of Hilo, Hawaii.

Lihue, the name of a village and important agricultural district of Kauai, is found also in the grazing districts of Oahu, and of Hawaii.

Wahiawa, an inland section of Oahu and site of a prosperous farming colony, is the name also of a well known land division on Kauai, and the same is found again in Kona, Hawaii.

Wailua, a well known division of Kauai, has namesakes of smaller dimensions on Molokai, on Maui, and in the Hilo district of Hawaii.

Waimanalo is duplicated on the Island of Oahu, being the name of a division in the windward, Koolau district, and also of a location in the lee district of Ewa.

Honolulu, of Oahu, has its namesake in a small division of land in Puna, Hawaii, embodied in R. P. (grant) No. 3331.

Napoopoo is another instance of duplication on the same island, being the name of a village and landing on the south side of Kealakekua Bay, Hawaii, and also of an extensive division of land in the Waipio valley.

Halawa is a well-known locality alike of Ewa, Oahu; Molokai, and Kohala, Hawaii.

Waianae, the northwestern division or district of Oahu, has a namesake in Lahaina, Maui.

Waihee, the name of a famed valley and cane district of Maui, is also applied to a division of land in Koolau, Oahu.

Keauhou, a landing place and extensive division of land in Kona, Hawaii, has an ili aina, or land division, of like name in the Puna district of the same island. It is also applied to divisions of land on Maui, Molokai, and a locality in Honolulu.

Kahuku is a division of Oahu forming its northeast point, and *Punaluu* is the name of a landing place approximate thereto. In the southern part of Hawaii is an extensive ahupuaa, or division, likewise known as *Kahuku*, and *Punaluu* is the name of a shipping point and village a few miles further along the coast.

Kipapa, a gulch of legendary fame on Oahu, which is said to have been so named from heaving been paved, *Kipapa*, with the corpses of the slain in battle,* is the name also of two places on Maui; at Waiehu, and Hamakualoa.

Puueo is a place name found on Kauai, Oahu, Molokai and in two localities on Hawaii. These places may have been so named for being possibly gathering points of owls, traditionally referred to on the several islands.

The name of *Kealia*, one of the successful cane districts of the Island of Kauai, is found applied to locations on Maui, Lanai, in Kona, Hawaii, and also in Honolulu.

Other instances might be enumerated, and will probably suggest themselves to some readers, of similar names applied to localities on two or more islands of the group, but sufficient perhaps are here presented to illustrate the question involved.

The off-hand answer by the majority of Hawaiians is that they do not know; their reasoning powers apparently lie not in this direction. A few aver that it resulted from the moving of the people, as for instance, a family, or more likely a chief and his adherents, from Halawa, on this island, moves to Molokai, and locating awhile, give its name to their new abiding place, then changing, or a portion of them, to the district of Kohala, found another Halawa in memory, perhaps, of the "leeks and garlies" of their earlier days.* But in a race whose language con-

*Alexander's Hist.

*Since the foregoing was in type the following has been handed in as illustrative of the idea of names being repeated by chiefs, through sentiment.

When the chiefs went to live at *Luakaha*, Nuuanu, it was changed by Lahilahi-Kaeo to *Kahalauaola*, the name of a place on Kauai which it resembled, from its then wooded character. Lately it has taken the name of *Laukaha* again.

tains no equivalent for the word "home," is it reasonable to expect them to hold their place of residence with sufficient endearment as to perpetuate its name in their travels. There would seem to be reasonable ground for grave doubt.

Tradition and geologists place Kauai as the oldest island of the group and it may be inferred that it was the first inhabited, though Fornander, S. Percy Smith and other authorities, identify names of prominent places on Hawaii with those of Southern Polynesia, which largely indicates the course of the aborigines in their voyages hither, fails to confirm this idea. Yet it is interesting to note the number of Kauai names that are scattered over other islands of the group. Out of a list of some forty repeated names on the various islands, Kauai holds fourteen that are found on Oahu, five each on Maui and Molokai, and twelve on Hawaii. Oahu also holds fourteen out of the list that are found on Hawaii, eleven on Maui and seven on Molokai.

In this connection the traditional change of Pele's scene of activity in beginning at Kilauea, Kauai, and ending at Kilauea, Hawaii, already referred to, has some significance.

The subject, including the significance, appropriateness and otherwise, of Hawaiian names, whether of place or person, is one worthy of more study than has been, apparently, given to it, judging from the rarity of articles to be found thereon.

Nawiliwili, Kauai.—When Kaikioewa moved there to live he called the part selected by him Lihue, after his place on the Waianae plains of Oahu.

Hanaikamalama, Nuuanu Valley, was so-called by John Young, Jr., on account of his regard for his old home in Kawaihae, Hawaii.

That portion of Puna, Kauai, called *Kawaihae* still retains that name which is said to have been given it by Kalakaua, after the Glee Club of that name originated by him.

A REGISTER of the names of foreigners residing in Honolulu at the opening of 1847, together with their occupations, may be found in the *Polynesian* of January 9th of that year, at which time it was estimated that with ladies (52.) not included in the register, which numbered 353, and children (113,) there yet remained a floating class that would give 600 in round numbers as the then average foreign population of the town.

IRRIGATION IN HAWAII.

By M. M. O'Shaughnessy.

[From the Hawaiian Planters' Monthly for October, 1904.]

THE development of irrigation projects has been prosecuted with great vigor by private corporations owning sugar estates in the Hawaiian Islands during the last ten years. No aid for this work has been received from either the local Territorial Government of Hawaii or the National Government at Washington. What was formerly arid and unproductive soil covered by wild brush and pasturing a few cattle, has by the application of water at a heavy expenditure of money and enterprise, been converted into productive sugar-cane land.

RAINFALL.

The rainfall of the Hawaiian Islands is very local and peculiar in its distribution. The trade-winds blow off the ocean from the northeast, and on this slope a rainfall of from 60 to 200 inches a year is quite common, the intensity varying with the altitude and local configurations, while on the lee sides the rain is often as light as from 10 to 15 inches. The islands as a rule are quite rugged, varying in altitude at their central highest points from 3000 to 10,000 feet. The windward sides are covered with a dense brush which remains green throughout the year. On the northeast slope of Maui the maximum precipitation is at an altitude of 1500 feet, often as great as 400 inches a year at Nahiku, while at sea level and higher up the mountains it is only a third of this quantity.

USES OF WATER.

Water is used for irrigating the sugar cane, the annual crop of sugar each year amounting to 400,000 tons, which averages \$70 a ton, or \$28,000,000. One-half of this is due to the development of irrigated plantations during the last twenty years. The other 200,000 tons is raised on rainfall plantations, which are very

uncertain in their output, owing to the precarious rain conditions prevailing.

ANCIENT WATER RIGHTS.

The population of Hawaii was very dense in prehistoric times, as the remains of old houses and fields bear convincing testimony. Nearly all the streams were led out by ditches, called "Auwais," and the water used for growing taro, the national food, and other vegetables. The ditches were excavated in surface earth and maintained by joint users, each of whom had to devote so many days each month towards repair. The water was also distributed between its users by set rules and at stated times; each district with its branch ditch getting so many hours' flow of the stream.

The land thus cultivated was always in the vicinity of the stream as no long ancient conduits were built, and was styled "taro" land in contrast to "kula" or dry land, which carried no water rights.

The native Hawaiians have protected with the greatest zeal their water rights through taro land, which the gradual growth and expansion of sugar plantation interests have tended to absorb.

MODERN IRRIGATION.

The present water supply of the Islands is derived from two sources:

(1) By pumping ground or artesian waters from wells and sumps, excavated near the sea shore. The pumps are driven with either coal or oil as fuel, or by electricity generated from water power.

(2) By gravity, from the natural flowing streams, the impounding of flood waters of same; and by the interception of ground water by tunnelling.

One of the most striking discoveries the Continental engineer has to experience is the extraordinary productiveness of some of the island water sheds, which destroys at once many preconceived theories as to what run-offs should be. The Waihee shed on Maui, with an area of about four square miles, yields a daily minimum flow of 17,000,000 gallons, while the Olokele shed on Kauai, with an area of about eight square miles, yields a minimum flow of 40,000,000, and a mean flow of 70,000,000 gallons

in twenty-four hours. Each of these water sheds is particularly and favorably situated for precipitation with brush-covered steep slopes, and with almost daily rainfall.

Nearly all the Hawaiian streams respond very quickly to rainfall, rising and falling quite rapidly; while those with a good dense brush covered water shed hold the volume in streams almost constantly above a certain minimum.

OAHU ARTESIAN SUPPLY.

The artesian supply of the Island of Oahu is the most peculiar and the most generous that we find in any country of such a limited area, the island being only about twelve miles wide, north and south, by thirty-five miles long, with mountain ranges near its north coast 3,000 feet high. It yields daily from wells and sumps 250 to 300 millions of gallons without any apparent diminution of the supply, the source of which is in a porous strata found at a depth of from 400 to 800 feet below the sea level. The static level of the water in the wells penetrating this formation varies from an elevation of 40 feet above the sea level at Honolulu to 22 feet at Ewa plantation, sixteen miles westerly. Excessive pumping or prolonged droughts vary somewhat this level which is always quickly restored on cessation of affecting conditions.

The islands are all of a porous stratified lava formation formed in layers by successive emissions from the ancient central cones which now form the summits of the islands. The water supply in the artesian strata near the sea is sustained by mountain precipitation, and the intimate connection between the mountains and the wells is proven by the sudden discoloration of the water in the latter some hours after heavy rainfalls in the mountains. The artesian condition of the Oahu strata is caused by a tight coral and clay cushion which rests on the foreshore and prevents the water escaping to sea. In none of the other islands, owing to the absence of this necessary formation, is artesian water found; the pumps being fed from sumps excavated from five to eight feet below sea level in all of which the water fluctuates from one to two feet, corresponding with tidal changes which vary in this tropical region from two to four feet between low and high

waters. The depth to which it is safe to lower the static water level in Oahu wells by pumping has been tested on each plantation. The rapid increase of salt per gallon by excessive pumping and the consequent lowering of the water level, forbids extreme practice in this respect. The Oahu artesian waters carry eight to twenty grains of salt per gallon in normal condition, while water with salt as great as 60 grains per gallon will successfully irrigate sugar cane. The pumping stations are usually fed by a series of 12-inch wells spaced 50 feet apart and connected by larger pipe with the suction ends of the pump placed at as low a level as practicable. One million gallons has been pumped out of each well thus spaced, and ten wells have been found sufficient for a 10,000,000 gallon pumping engine, which is the usual size of unit employed.

The water is usually pumped through a 24-inch or 30-inch discharge pipe, varying with the size of the pump and the head. Most of the water is delivered below an elevation of 300 feet, though in a few instances lifts as great as 450 feet have been pumped against. The uncertain and fluctuating prices of sugar, the cost of fuel and other expense practically preclude all profitable pumping above 400 feet. The work of pumping 10,000,000 gallons daily to 300 feet elevation with ordinary pumps in service will consume 15 tons of coal; which at \$8 per ton, would mean \$120 per day for fuel expense alone. The cost of labor, lubricants, depreciation, etc., have to be added to get the total cost. Owing to the extreme fertility of the soil as many as eight and twelve tons of sugar per acre are raised, which yields a return of about 10 to 12 per cent. on the investment. Five plantations on the Island of Oahu, namely: Kahuku, Waialua, Ewa, Oahu and Honolulu, have a pump capacity of 287 million gallons daily with a water horse power of 11,847 and draw water from 195 wells. Waianae furnishes the novel feature of using the fall in some gravity water found in its higher levels (500 to 1400 feet) to develop power, after which the water is again used for irrigating the lands lower down, while the power is transmitted to electrically driven pumps near sea level to lift ground water from wells to the 150 foot level. Maui comes next with a pump capacity of 140 million gallons daily of 6945 horse power, the water being

drawn from sumps. Kauai has 55 million gallons daily pump capacity with 2033 horse power, drawing principally from sumps, while Hawaii, which is the largest of the islands, has only one pump of 7 million gallons' capacity, of 412 horse power, pumping from a shaft and sump.

The steep slopes, porous soil and high elevations of the plantations have prohibited irrigation on the Island of Hawaii, which is the most recently formed geologically of all the islands.

No flowing surface stream exists for a distance of two hundred miles on the coast, from Kohala southerly around to Hilo. The soil is of so porous a nature that it passes the rainfall through like cinders and allows no surface accumulations of water. It has the volcanoes Mauna Loa and Kilauea intermittently active, which emit two distinct varieties of lava; "Pahoehoe," which is heavy and compact, having sometimes a smooth glassy and undulating surface; and "A-A," which is much lighter in specific gravity than the former, often floating on its surface during flows and breaking up into all kinds of disintegrating masses on cooling.

PUMP INSTALLATION.

Experience with the direct-acting, slow-moving pump of the Worthington type has not been encouraging. All new pumps now installed are of the high-speed fly-wheel type, which consume much less coal; and where all fuel has to be expensively imported, the greatest economy in this direction has to be exercised. The pumps are nearly all installed in concrete-lined pits 36 to 50 feet square, excavated to the water level, while the boiler plants are on the ground surface above. In three instances at Oahu, Kihei and Kohala, the experiment of sinking shafts from the ground surface 200 to 300 feet down to the water level, and excavating pump compartments at this level have been tried. The difficulties of ventilation and the expense of shafts and chamber have more than balanced in each instance the saving of cost of placing delivery pipe on the surface and the friction lost in same, which were the principal inducement for installing this system. The ground water has also been found as brackish in such a shaft two miles from the sea, as water found in wells 100 yards from the beach.

Outside of Oahu all pumping has to be very cautiously prosecuted as too great a lowering of the sump level will increase the quantity of salt in the water, running it up to 100 or 200 grains per gallon, which renders it unfit for irrigation purposes, as it incrusts the soil with salt and damages the cane plants. Owing to the great porosity of the rock formations and the heavier specific gravity of the sea-water, the tendency of the latter is to force itself inland where any vacuum is created by excessive pumping and consequent lowering of ground water.

GRAVITY SUPPLIES.

All available streams are now tapped by ditches on Maui and Kauai. The first was built on the windward side of Maui in 1878 by Mr. H. P. Baldwin and Mr. S. T. Alexander. The next was built in the same section by Mr. Spreckels in 1879-1880, under the supervision of Mr. H. Schussles of San Francisco as engineer. It is about thirty miles long, of 50 million gallons daily capacity, and delivers the water at an elevation of 250 feet, and is known as the "Haiku" ditch. This ditch was intercepted by a new work called the "Lowrie ditch" in 1900, which delivers the water at an elevation of 450 feet. The writer has just finished a new aqueduct, known as the "Koolau ditch," which taps all the Nahiku rain belt at an elevation of 1250 feet and discharges into the older and lower ditches. It is ten miles long, seven and one-half miles being in tunnel and two and one-half in open ditch and flume. The tunnels are all in solid rock, eight feet wide and seven feet high, with a daily capacity of 85 million gallons. Owing to the extreme porosity of the lava rock, four and one-half miles of concrete lining six inches thick is used in the tunnel to prevent seepage. The work was all done by Japanese with hand drills; ore cars were employed in moving the excavated materials, and it has cost finished about \$7 per lineal foot. The Japanese make excellent miners and rock men, and, owing to their small size, it was practicable to work four in a face, and by working three 8-hour shifts, the whole work had to be completed in eighteen months from the date of commencement, April, 1903. There are thirty-eight tunnels on the work, averaging each 1000 feet long, the shortest being

300 feet, the longest 2710 feet. The country was so steep and precipitous that little ditching could be employed, and it was necessary to make four and one-half miles of wagon road and eighteen miles of stone paved pack trails to facilitate during construction the transportation of supplies. About 4000 barrels of cement and 100,000 pounds of giant powder were used. In all ten mountain streams are intercepted, which are admitted into the main aqueduct through screens of grizzly bars spaced three-quarters of an inch apart.

The Honokahau ditch, with 30 million gallons daily capacity, has just been finished on West Maui. It is thirteen and one-half miles long on a grade of five feet per mile and has 200 feet of 36-inch syphon pipes and three and one-half miles of tunnelling, and has cost \$185,000. It delivers water at 700 feet elevation.

All the streams on the island of Maui are now tapped by ditches, including the Waihee stream, previously referred to at Wailuku.

MAKAWELI DITCH.

The "Hanapepe ditch," Makaweli, Kauai, was built by Mr. Baldwin in 1890, to tap the stream of that name. It has 7040 feet of 40-inch riveted steel syphon pipe, 1013 feet of tunnels, 14,618 feet of flume, five feet wide by forty inches deep, and ten miles of ditching on a general grade of six feet per mile and carries 35 million gallons daily. The use of wooden flumes in tropical countries is not advisable, as repairs have to be frequently made owing to the rapid decay of the wood. This ditch delivers water on the plantation at 450 feet elevation; and a new one just built and completed under the writer's supervision, known as the "Olokele ditch," delivers water at an altitude of 1075 feet and has a daily capacity of over 60 million gallons. It involves eight miles of 7x7 feet tunnels, five miles of ditching; and it has cost completed about \$360,000. At one point a drop of 228 feet was obtained which it is proposed to utilize for electric power purposes in operating the plantation mill and railway. Makaweli plan-

tation has now the best gravity supply on the islands, with a daily minimum from its two sources of 65 million gallons. It is proposed later on to store the freshet water in reservoirs and use them as balancing mediums to restore the supply when the streams run low. Owing to the steep land slopes, six to fifteen degrees, it is very difficult to select favorable reservoir sites, except in the center or back of old volcanic cones.

Many streams have been diverted and many ditches made during the last five years on Wailuku and Pioneer plantation on Maui, the Oahu and Waialua plantations on Oahu, and the Koloa, Makee and McBryde plantations on Kauai, but for the reasons before stated practically no stream diversion for irrigations has been made on the largest island, Hawaii, except the development of water for cane fluming purposes at Olaa, Pahala and Hutchinson.

GROUND WATER.

The most novel development in water supply has been the discovery of water by driving tunnels into the lava formation at high altitudes at encouraging localities. It is very difficult to predict what success will reward any outlay in this field, as the results are all problematic. A two-million gallon flow has been developed at an altitude of 1400 feet at Waianae on Oahu island, by a five hundred foot tunnel; while at Lahaina, on Maui, at an altitude of 2600 feet, a six-million gallon daily flow has been developed by 2600 feet of tunnel in a formation whose exterior surface showed no signs of water such as springs, etc., and this volume has kept practically constant for two years, fluctuating slightly with the rainfall on West Maui mountain in its immediate vicinity, 3000 feet higher. On the other hand in the fifteen miles of aqueduct tunnels cut under my supervision in the past two years no ground water in any quantity has been intercepted except an occasional drip from tunnel roofs through porous stone.

DUTY OF WATER.

One million gallons of water per day is the quantity found

necessary to irrigate each hundred acres. Sugar cane is grown in furrows about five feet apart, into which the water is turned from the field ditches. When the seed is newly planted the water is turned on every three or four days, but after that an application of once each ten days is considered sufficient. The above quantity if applied uniformly to the whole surface would make a depth of 134 inches in one year excluding rainfall, and evaporation, which is possibly fifty inches in most of the irrigated properties. It means the application, for a crop period of one year and a half of 22,800 tons of water per acre to produce 50 to 80 tons of cane, which would appear to be excessive.

It is safe to presume that leaky reservoirs, ditches and unequal and wasteful distribution prevent the application of not more than one-third of the above quantity of water to the roots of the cane where its value would be utilized.

Economies of various kinds in the application of water are now being gradually introduced which will enable the best results to be obtained. Nearly all the water so far developed has been used by the owners on their own property. Lately surplus has been disposed of to adjacent owners at a flat rate of from \$8 to \$10 per million gallons. Great credit must be given the American pioneers who have developed such splendid supplies under so many adverse conditions in the past twenty years in those remote islands in the Pacific. By no other people except perhaps the Mormon settlers of Utah has so much enterprise been displayed and so many sacrifices been made in developing the non-productive country into one of pronounced prosperity.

[In connection with the foregoing paper we have endeavored to obtain from official sources the amounts that have been expended for the development of water for cane culture throughout these islands. Unfortunately all parties have not replied to the enquiry circular sent them, but sufficient is gathered to fully confirm the above testimonial to the energy and enterprise of the Planters of Hawaii.—ED.]

Table Showing Quantity of Water Developed for Cane Irrigation, Territory of Hawaii, and Expenditure for Same, So far as Obtained from the Various Plantations, to Nov. 25, 1904.

DEVELOPMENT UNDER GRAVITY SYSTEM

PLANTATION	DITCH NAME	CONSTED	MILES	DAILY FLOW*	COST
Haiku, etc.....	Hamakua.....	1878	17	.....	\$ 80,000
Hawn. Com. & Sug. Co	Spreckelsville...	1879	25	.....	250,000
"	Lowrie.....	1900	22	60	235,000
Central Maui.....	Koolau.....	1904	10	50	315,000
Waihee, etc.	Waihee.....	18—	.....	.....	(No Report)
Pioneer	Honokohau.....	1904	13½	30	185,000
"	Various streams.	—1903	.....	27	252,000
Oahu Sugar Co.....	"	—1903	.....	5	100,000
Hawaiian Sugar Co..	Hanapepe.....	1891	17½	35	320,000
" " " " " "	Olokele.....	1903	13	45	360,000
McBryde Sugar Co...	Eleele, etc.....	1899-03	.....	.....	40,000

Total expenditure for water supply, by gravity, so far as reported..... \$2,137,000

DEVELOPMENT BY TUNNEL AND ARTESIAN WELLS

PLANTATION	SYSTEM	CONSTED	No. Wells	Pumping Station	DAILY FLOW*	COST
Pioneer	Tunnel	1902-04	..	.....	11	\$ 31 600
"	Artesian wells...	1900-04	45	4	35	470,000
Kohala Sugar Co....	Tunnel.....	1903	..	1	7	(No Report)
Kihei	Tunnel, etc.....	1902	12	3	27½	459,090
Ewa	Artesian wells..	1890-03	48	7	69¾	747,097
Oahu Sugar Co.	" "	1897-03	68	12	63½	1,320,000
Kahuku.....	" "	1890-03	25	6	41 1-5	243,063
Waialua†.....	" " etc.	1898-03	..	9	.....	1,600,000
McBryde	Tunnel & wells.	1899-03	38	3	20	625,475
Kekaha	Wells.....	1890-98	26	2	18	80,000
Waianae.....	Tunnel, etc.....	.....	.....	.....	.....	(No Report)
Honolulu.....	Artn. wells, etc.	.....	.....	.....	.....	"

Total cost of Development of water supply by Tunnels and Artesian Wells, so far as reported..... \$ 5,576,325

Total cost of Gravity system supply, as above 2,137,000

GRAND TOTAL.....\$ 7,713,325

*Daily flow in Million Gallons.

†Figures from Sixth Annual Report.

LAHAINALUNA'S NEW DEPARTURE.

LAHAINALUNA Seminary, which was established in 1831, has taken a new lease of life. The old buildings which were reconstructed in 1865 have been torn down and an entirely new set of dormitories and school rooms, together with an assembly hall, are now in course of construction. Lahainaluna was established by the American Protestant Missionaries in 1831 as a training school for teachers and clergymen. Tuition was free and the pupils supplemented this in part by cultivating a tract of land granted to the school by the Chiefess. According to a monograph written by Dr. Alexander a printing press and book bindery were attached to the school at which numerous text books in Hawaiian were published, and in 1834 the first newspaper ever printed in the Pacific Ocean, the *Lama Hawaii*, (*Light of the Land*) was issued. Maps and illustrative articles were also engraved on copper by the pupils.

For many years the institution was in the lead for instructing Hawaiians, and some of the most notable men under the Monarchy acquired their education at that place. When the Kamehameha Schools were established, through the munificent gift of the High Chiefess Pauahi Bishop, the drift of Hawaiians seeking education tended towards that institution, and Lahainaluna seemed to be on the point of extinction.

The Department of Public Instruction decided that there was room for an institution like Lahainaluna in spite of the greater attraction of the Kamehameha Schools. The institution was thoroughly reorganized, and in 1903 Mr. C. A. MacDonald was engaged to carry out the reorganization, which he has done in a very able manner.

The institution now may be called an agricultural college in embryo. The boys who attend are instructed in practical agricultural work and are further instructed in blacksmithing, carpentering, plumbing, and taro cultivation, with the object of making them thoroughly useful citizens of the Territory. The aim of the institution now is not to produce teachers, clergymen or lawyers as it has done in the past, but to produce real workers who can take up lands and intelligently handle them, manage their crops in the best manner and have a good knowledge of the care of farm animals and the use of tools. In addition to this there is a good literary course the excellence of which can be vouched for by the fact that two of the pupils last year entered the High School, in Honolulu, after a competitive examination.

The new buildings to be erected consist of a central school house on the site of the old school house, and two dormitories, one on each side of the school house proper, separated from it by 46 ft. in each case. The school house has a frontage of 108 ft. facing towards the sea. The dormitories, on each side, have a frontage of 87 ft. and a depth of 34 ft. In each dormitory there are two sets of rooms opening upon a central corridor. Behind the dormitories, but not attached to them, are bath rooms and lavatories which are reached by covered passages. There is a regular system of sewerage and each building is provided with hose to check any chance of fire, and moreover all the main doors open inward and outward so that if any fire or panic occur instant egress can be obtained.

The designs for the new buildings were made by architect H. L. Kerr, and though simple in character are very substantial. Lahainaluna will now have accommodations for a very much larger number of pupils than it has previously accommodated, and under the able managements of the present staff there is every probability that it will become one of the leading institutions of the Territory.

RETROSPECT FOR 1904.

AS INTIMATED in the last Annual, political tension was at white heat toward the close of the year over the County Act, which was passed to take effect January 4, 1904, The Supreme Court had ruled against one point therein in a case brought before it, and upon a subsequent test prepared and presented by the Bar Association, in which several reasons were argued against its validity, on one of which, that relating to the tax provisions, the Act was declared unconstitutional and void. This opinion, which was unanimous, came several days after the County government officials had entered upon their duties as required by the Act, pro forma, pending the decision, when, on its rendition, January 13th, the business and general community breathed freer, and Territorial officials that had vacated their posts resumed their responsibilities.

Advocates of this incubus on the progress of the Territory were not slow to threaten appeal to Washington, and for some reason as yet undiscovered, the Governor surprised many of his friends by his expressed solicitude for county government for these islands. Fortunately, Congress did nothing about it, though at the extra session of the legislature here, to provide "ways and means" and to legalize retrenchments, even to school teachers' salaries, the Governor was empowered to appoint a commission to draft a county bill for the consideration of the next legislature that would be likely to hold together, of which commission H. E. Cooper is chairman.

THE EXTRA SESSION.

Early in the year the necessity of retrenchment in the current expenditures of the government became the announced policy of the administration, and public opinion was divided upon the necessity of an extra session in consequence; discussions waxed warm over the advisability or otherwise of such a step. While the public realized the difficulty that confronted the administra-

tion through the altered laws and failure of the County Act, little confidence was felt that the House would act any different than in the sessions of 1903, both of which were notorious for expense and delays. Nevertheless, the Governor called it together, and through fear of opinion at Washington if further proof of Hawaiian legislative incapacity was shown, it was not only tractable to the Governor's desires, but finished up the business required of it in two weeks' time, convening April 6th and ending on the 19th. Kumalae, the obstructionist, tried his tactics of former sessions, but became amenable to reason—for a wonder.

THE DEFIANTS.

Mention was made in last issue of the questionable schemes of certain members and officers of the legislature for which they were on the inquisitorial rack before the grand jury. In its aftermath of a trial before the court, Kumalae, the aspirant for speaker and renegade Republican, and Enoch Johnson, his committee assistant and legal advisor, were each found guilty of gross cheat and sentenced to a year's imprisonment, from which an appeal was entered. Pending a hearing, the notorious egotist had the effrontery to seek a nomination, and stumped the country in the recent campaign, in the interest of Home Rulers, to lure the unthinking voters. Meheula, clerk of the House, implicated in the scandalous proceedings, got clear; a sadder and wiser man.

THE RECENT CAMPAIGN.

In the recent political campaign—a three-cornered contest—it became early manifest that the Home Rulers were suffering serious deflections from their party ranks, and not a little effort was made toward fusion with the Democrats to oppose the increased strength of the Republicans. The work of the campaign showed less of party platform effort than it did of personality respecting Governor Carter and his administration, and the qualifications or otherwise of the respective candidates for Delegate to Congress.

Early work in the Republican ranks in the campaign,

gained much by its thorough organization, so that on summing up the results of the election, it was found that the whole party tickets, for Senators and Representatives in all the districts of the islands were returned with large majorities, save one lone Home Ruler representative, from the Kona district of Hawaii. Delegate Kuhio was also re-elected by a large majority over the Democrat and Home Rule candidates.

Through a blunder in forwarding the returns from two of the out-districts, it will not be possible to tabulate the complete official returns of the election for use in this issue.

MORE DEFALCATIONS.

The community is pained again this year in the revelations of officials and others who have not proven true to the trust reposed in them, the public offices affected being the Water Works Bureau, the Land Office under the late commissioner, and the clerks' office of the High Sheriff. The Hawaiian Trust Co. and the ticket office of the Oahu Railway Co. are sufferers also from "trusties gone wrong."

AN EPIDEMIC OF CRIME.

In the double murder of Mrs. Parmenter and daughter in 1903, the long protracted trail for which in one case resulted in acquittal, and the deferred trial in the other, justice still cries aloud unappeased, encouragement seems to have been given for like acts of criminal violence, that their frequency, for these islands, has alarmed the community.

Interference with Japanese gamblers on Kauai, caused the murder by dynamite of G. H. Glennan, constructing engineer of the new Makaweli ditch. After much patient search the dastardly midnight assassin was tracked down and confessed. Other murders have since occurred on Kauai, Oahu, and Hawaii, assailants and victims being Japanese.

In this city a likely Chinese insurance clerk was foully murdered by a fellow countryman for declining to loan a

sum of money, and a sailors' saloon fracas caused the death of a negro named Harris.

The murder of S. Edward Damon, on the highway near his own premises by a Porto Rican, without provocation, save an order to replace a stolen lantern, aroused public feeling at the menace this indolent class of people are to the community, and the high esteem in which the victim was held throughout the islands, called forth their sympathy to the stricken widow and parents. The murderer was caught the same night, and upon action of the grand jury was brought to speedy trial, found guilty, and has suffered the death penalty.

And while in the midst of this trial a young Hawaiian magnified some trivial domestic trouble as to fancy himself warranted in the deliberate shooting of his wife in the presence of his mother. He was captured the following day, and the case has come to trial, but the law's delay under some technicality has already got in its work.

PUBLIC IMPROVEMENTS.

Public improvements throughout the Territory have been prosecuted as far as means from the loan placement of \$1,000,000 effected last year allowed, and Secretary Atkinson is now absent upon the financial mission of advantageously placing the remainder of the loan for the completion of plans contemplated.

The work that has been pushed under the loan act embraces certain road and sewer work, bridges, wharves, dredging, water works, etc., and more would have been accomplished during the year but for legal technicalities and law's delays on several contracts.

The new Royal school building is at last nearing completion, and is a creditable and spacious structure of two stories that the educational needs of this city has long demanded.

Lahainaluna, Wailuku, and several other sections of the islands have also had their needs attended to in this respect, though all are not yet completed.

On the water front new and substantial wharves are in

progress. A clear area now prevails below Queen street from the foot of Nuuanu to the new Inter-Island Co.'s wharves along River street beyond Maunakea, by the demolition of the old custom house and the removal of Brewer & Co.'s recently constructed brick warehouse to the upper side of Queen street, near the site of the original foundry and flour mill.

WEATHER CONDITIONS.

With the exception of a remarkably rainy spell in February, the weather conditions throughout the islands for the year has been even and beneficial to the agricultural and grazing interests. The "dry spells" and droughts of summer, usually experienced, gave place to well distributed showers.

The rain storm of February was unusually long and severe, causing much damage in various parts of the islands. In the rice districts the crops were seriously injured, as were also many sections of cane fields. Oahu felt its severity more than the other islands. The Oahu Railway not only suffered much from injurious washouts, but also from the interruption to traffic for two weeks. Bridges and roads, more than landings, in many parts of the group suffered materially. The average rainfall of the various stations reporting was 24.87 inches, being four or five times the normal.

REAL ESTATE AND BUILDING.

Activity in the real estate market has not been manifest during the period under review, notwithstanding the almost universal drop in values despite the effort of interested parties to keep as near to boom figures as possible.

The lethargic condition of trade has been apparent in the real estate and building lines, of which the unusually large number of foreclosure sales is painfully evident, many of them not satisfying the amount of the obligations thereon.

The extensive administrator's sale of the properties of the late W. L. Wilcox, in various parts of the islands, attracted much attention and, considering its volume, realized well for the times.

With the exception of several stores, etc., in the Chinese and Japanese quarters of the city, there is nothing new in business structures to record for the year. The Odd Fellows' building, which was described in our last issue, was completed and dedicated, July 30th, 1904. We give an illustration of the edifice herewith, executed expressly for the Annual.



THE ODD FELLOWS' BUILDING.

Some twenty-five new cottages have been erected since last review, mostly residences in the College hills and Kaimuki tracts, and south Beretania and King streets. Improvements lately lie mostly in this direction.

DIVERSIFIED INDUSTRIES.

Much interest has been manifest by the press of the Territory throughout the year in their frequent reference to small farming and advocacy of diversified industries, a subject of vast importance to these islands, and which has now the scientific knowledge and aid of both the Federal experiment station corps, and the Territorial Bureau of Agricultural and Forestry to assist intelligent effort in this direction.

It is pleasing to note the establishment of fruit canneries on Maui, and in Hilo and Kona, on Hawaii, and that substantial shipments of preserved pineapples, etc., have been exported this year to supplement those from Wahiawa, on this island.

Banana culture for export is making onward strides, the shipments from Hilo giving encouragement to the enterprise since special provision for their care in transit has been made. The shipments from this port for the year will be creditable, and growers are advised to increase their effort and widen their market. A recent Bulletin (No. 7) of the Experimental Station, devoted entirely to the Banana in Hawaii, is the first monograph on this subject, prepared for the practical purpose of getting the best out of the soil, whether of home consumption or export variety.

Sisal and Vanilla culture are becoming more firmly established. Of the former product the pioneer company at Ewa, is increasing its area from 750 to 1,000 acres; the Hawaiian Agricultural Co., at Kau, is devoting 500 acres to its culture; the Haiku Sugar Co., on Maui, has 200 acres in already, and will add more. Others in that section offer encouraging inducements for homesteaders to do likewise. Molokai, as reported last year, and Kauai are also interested therein.

The tobacco trial in Hamakua, mentioned in our last issue, is reported to be making such progress as meets expectation, and in due time will be heard from.

Coffee interest is reviving. Louissou's Hamakua shipments for the season's crop being satisfactory as to quantity if not in price. Kona and other parts of Hawaii give also favorable reports, and in the Olaa section attention is being turned again to this product.

Rice culture in the islands is finding itself severely handicapped in the competition met with by the heavy importation of Japan rice of late, and the apparent preference the Japanese show for it over the local production.

A new enterprise established during the year has been the tannery of the Metropolitan Meat Co., situate at Kalihi, where will be manufactured from island hides and skins all classes of shoe, lace, rice and other leathers. The tannery employs fifteen people at present and the concern plans to place goods of the highest grade on the market to meet all local requirements.

PLANTATION MATTERS.

Much solicitude was felt early in the year at the formidable inroads of the "leaf-hopper" pest, causing serious damage to the young cane of several plantations in various districts of the islands. Vigorous measures were adopted to overcome the evil and search made for their natural enemy, which, fortunately, has been found by Messrs. Koebele and Perkins in Queensland, Australia, whence this species of pest is said to have been introduced. Two consignments of the parasites have been received, but under great disadvantages owing to the distance and the disconnection of steamers. Still, successful breeding is in progress, and with other natural enemies existing here, will, in time, overcome the danger. This variety of pest we have here is said to have been first noticed by Mr. R. C. L. Perkins in the latter part of the year 1900,

though serious damage therefrom was not manifest till two years later.

For this and other reasons the Planters' Association have materially enlarged its corps of scientists in the agriculture, chemistry and entomological divisions, and with government co-operation, in part, is working on both eradivative and preventive lines to overcome the various enemies of our agricultural effort.

In the early part of 1904 a union of interests of the Haiku and Paia plantations and several adjoining planting interests were effected, forming the Maui Agricultural Co.

The controlling interest of Alexr. Young, Esq., in the Pepee-keo plantation has been purchased by Brewer & Co., Ltd., the purchase carrying with it the agency.

Maui Sugar Co., a Chinese corporation at Huelo, Maui, has become, through foreclosure proceedings, a plantation of the past.

Puna Sugar Co. of Hawaii and the Hana plantation of Maui are in the hands of receivers, with the prospect of the former being disposed of in the near future at public auction.

The Olaa Sugar Co.'s agency has been transferred during the year to the banking house of Bishop & Co., and its managership placed in the hands of Mr. John Watt, formerly of Honokaa.

The Hawaiian Sugar Co., at Makaweli, has contracted for a duplicate of the Puunene mill, described elsewhere in this issue, to be completed in time for the next year's crop.

The Honolulu plantation is pioneer in the field with a sugar refinery outfit, having introduced a complete refining plant, for auxiliary use as circumstances warrant.

The first export therefrom was made Nov. 30th in a trial shipment of several grades.

INCREASED WATER SUPPLY ON MAUI.

September last witnessed the completion of the additional water supply by the new Koolau ditch for the irrigation needs of the extensive cane fields of central Maui. Mention was

made in the last Annual of this work as in course of construction by M. M. O'Shaughnessy, C. E. It was begun in March, 1903, and was completed and formally opened September 16, 1904. In its total length of ten miles, 39,282 feet is in rock tunnel, 10,179 feet in open ditch and 692 feet in flume. There are no less than 38 tunnels of an average length of 1040 feet, the longest one of the series connecting the Honomu and Keanae valleys, measuring 2712 feet. The tunnels are eight feet wide in the clear, seven feet high and when carrying a depth of five feet of water will convey 85,000,000 gallons daily.

The Honokohau ditch is another enterprise brought to completion during the year, whereby waste streams of the Honokohau valley are brought out on to the Kaanapali lands and in to Lahaina for the extending cane fields of the Pioneer plantation.

Wailuku plantation is now planning the construction of a ditch to supply them with some 42,000,000 gallons of water per day from Iao and other valley streams, for irrigation purposes.

OFFICIAL CHANGES.

Numerous changes have occurred in various departments of the Government during the year, partly through expired commissions, necessity of economy in administration, and other causes.

On the Supreme Bench Hons. A. S. Hartwell and F. M. Hatch were appointed to succeed Hons. C. A. Galbraith and A. Perry, whose term of office expired.

Jas. L. Holt succeeded to the Assessorship, vice J. W. Pratt appointed Commissioner of Public Lands.

A. J. Campbell, Esq., was appointed Treasurer, vice Hon. A. N. Kupoikai appointed to succeed J. W. Kalua as Judge of the Second Circuit, Maui.

Judges Little and Edings of the Fourth and Third Circuits, Hawaii, were succeeded on the expiration of their terms by C. T. Parsons, and Jno. Matthewman.

Martson Campbell, Asst. Superintendent Public Works, is succeeded by J. H. Howland. Dr. C. B. Cooper, as President of the Board of Health, is succeeded by L. E. Pinkham, Esq., and Chas. H. Merriam succeeded Thos. G. Thrum as Registrar of Conveyances, resigned.

High Sheriff A. M. Brown and his Deputy, Chas. F. Chillingworth, recently resigned, are succeeded in office by Wm. Henry, late warden of the prison, as High Sheriff, and Wm. T. Rawlins as his deputy.

BUSINESS CHANGES.

In the early summer the Hawaiian Hardware Co. closed out its business to T. H. Davies & Co. and the Pacific Hardware Co.

In August the old established firm of Castle & Cooke vacated their premises at the corner of King and Bethel streets, which they had occupied since the summer of 1856, and moved into the Stangenwald building, on Merchant street, occupying all the offices on the main floor, which had been specially fitted for their use.

The Oriental Bazaar, that occupied prominent quarters in the Waity block, King street, has retired from this field to try "pastures new."

J. Hopp & Co., furniture dealers, etc., have recently moved from their old King street stand to spacious quarters in the Young building, on Bishop street.

The City Market Co. has erected a structure at the corner of King and Kekaulike streets, and, with the recently established Chinese fish market near by, have materially affected the business of the Esplanade market.

At this writing negotiations are in progress looking to a change of ownership, or controlling interest, in the Volcano

House Co., to be conducted in connection with the new Hilo hotel project of Geo. Lycurgus.

The Owl Drug Co. of Hilo is a thing of the past.

NAVAL VISITORS.

Toward the close of 1903 Honolulu was enlivened by the welcome presence of the U. S. Asiatic Squadron, from Yokohama, under Admirals Evans and Cooper, consisting of three battleships, four cruisers, a collier and a supply ship, with their quota of some 3,000 men. The fleet remained here about two weeks coaling and taking on supplies, and affording liberty to the crews, which materially benefited the trade and social life of the city.

In mid-summer another visit of the fleet, under Admiral Glass, arrived from the "far east," en route on their northern cruise, comprising the *Buffalo*, *New York*, *Concord*, *Mablehead*, *Bennington*, *Mohican* and *Albany*. At the same time came the training ship *Adams*, from Samoa, and the new cruiser *Tacoma* from the coast, the latter vessel on a cruise in search of some unknown or lost island supposed to have caused the total disappearance of the U. S. S. *Levant* in 1858, which proved unsuccessful.

Among several foreign naval visitors during the year was that of the Italian cruiser *Liguria*, Duke of Abruzzi, commander.

DISTINGUISHED VISITORS.

Among the more prominent personages visiting Honolulu during the period under review is to be noted that of Dr. F. E. Clark, of the Christian Endeavor movement, on his round-the-world tour; Governor Taft of the Philippines, en route to Washington; Premier of Persia, en route to the States; Prophet Dowie, en route to Australia; Prince Pu Lun, of China, en route to St. Louis; the Filipino Commissioners (44) for St. Louis; Prince Luigi, Duke d'Abruzzi, of Italy, and Prince Fushimi, of Japan, en route to Washington, most of

whom were duly entertained during their brief stay, with many others of renown, including special war correspondents and artists, en route to or from the scene of conflict.

Prince Fushimi made his visit memorable in a substantial way by a donation of \$500 each to the Associated Charities and Japanese benevolent work of the city.

FIRE RECORD.

The fires of the city have been somewhat frequent, and though seldom in any one case of great amount, the serious aspect of the situation is in the number of suspicious cases, which point strongly to incendiarism, especially in those of Chinatown and Kakaako.

Among the more prominent of these disasters were the residences of Geo. H. Robertson, in January, with loss placed at \$18,000; those of A. Coyne, Chas. Moore, and T. C. Maguire, in July; the Schuman Carriage Co.'s warehouse, in March, with damage of \$15,000; and the Aala lane block of stores, etc., in September, loss being placed at \$25,000.

In Hilo, the fine new residence of P. Peck, Esq., was wholly destroyed by fire in the early part of the year, loss reported at \$22,000.

NECROLOGY RECORD.

This portion of the year's record seems to have claimed an unusually large number from the well known older residents of the islands, many of whom were prominent in their several spheres, as will be recognized among the following names: Horace G. Crabbe, Henry Waterhouse, W. H. Conney, Mrs. A. A. Haalelea; W. E. H. Deverill, at Kauai; Mrs. J. E. Hillebrand, Geo. S. Harris, H. C. Reid, Mrs. Eliza Macfarlane, H. M. Whitney, Mrs. J. S. Reed at Hilo; Mrs. Alex. Mackintosh and Mrs. Hugh Morrison in Germany; Mrs. H. A. P. Carter, L. E. Swain, Hilo, Mrs. W. D. Westervelt; Gardner K. Wilder, Mrs. J. T. McDonald and Mrs. C. F. Banning in California; W. E. Beckwith on Maui; Jules Rein-

hart, Hilo; Rev. Thos. Gulick and Saml. T. Alexander in Africa; Mrs. G. Rhodes, Capt. E. T. Cameron, S. Edward Damon, Wm. F. Love, J. D. Wicke, F. J. Wilhelm, and Jas. Renton, Kohala.

It will be noticed in the above list how large a number of island people have died abroad this year.

KAMEHAMEHA TOMB.

In June last was completed a new Kamehameha Tomb in the grounds of the Royal Mausoleum at a cost of some \$15,000, to which were removed from the mausoleum the coffins of R. C. Wyllie, J. Kaleipaihala Young, Fanny K. Kekelao-kalani, B. Y. Namakeha, A. K. Kuniakea, Jane K. Lahilahi, Peter Kekuaokalani, T. C. B. Rooke and G. Kamakui Rooke. Appropriate dedicatory services were held by Bishop Restarick, June 19th, which were attended by a large concourse of people.

SHIPPING MATTERS.

The Wilder S. S. Co. have added to their fleet of coasting steamers this past year their newly constructed boat *Likeli*, built especially for the requirements of island trade on the coast, and has been placed on the Molokai run. The *Hawaii* and *Mokolii* have both been withdrawn and broken up.

Of the Inter-Island Co.'s fleet the stmr. *Hanalei* has been sent to San Francisco for disposal.

The annals of the port records the arrival on May 15th, 1904, of the Pacific Mail Co.'s new steamship *Mongolia*, which entered the harbor and docked without difficulty. She was welcomed by quite a demonstration of bunting, steam whistles, and music by the band.

MARINE CASUALTIES.

Marine mishaps around the islands have been fortunately unusually light this past year, but in the deep-sea service we have to note the total loss of the steamship *Connemaugh*, the

first eastern cargo of the season, which left this port in February for New York, with a full load of some 2,500 tons of sugar, since which time she has not been heard of. The U. S. cruiser *Tacoma* was sent in search some months later, following her supposed course, but no trace of her was ever discovered.

Ship *Emily Whitney*, with coal from Newcastle for Makaweli, Kauai, ran into a hurricane, January —, and carried away all topmasts, necessitating putting into Sydney for repairs. One seaman was washed overboard.

Schooner *Alice Kimball*, formerly in the coasting service, and owned here, went ashore at the mouth of the Suislaw river, in the latter part of October last, and has become a total loss.

FLORAL AUTO. PARADE.

Thanksgiving day, 1904, was the time selected for Honolulu's first automobile parade, on which occasion some seventeen vehicles of the tonneau and runabout class entered in competition, with their floral decorations, for three prizes offered for originality and beauty of design. It was a spectacular success that was enjoyed by a throng of observers at Union Square, where the procession formed at 10 a. m. The route of parade was out to Kapiolani park, where the prizes were awarded by Hon. A. S. Cleghorn, one of the trio of judges, as follows: First prize, Japanese design, was won by Capt. Robt. Graham; second prize, red and white asters, to C. W. C. Deering, and the third prize, a dream of violets, went to Harry Wilder. The procession then reformed and returned to town and paraded for a time through the city.

POSTAL SERVICE, TERRITORY OF HAWAII.

Corrected to December 1, 1904.

Frank J. Hare, Inspector in Charge.

Geo. W. Carr, Asst. Sup't. Railway Mail Service.

Jos. M. Oat, Postmaster.

Louis T. Kenake, Asst. Postmaster; Jno. T. Stayton, Asst. Cashier;
Geo. L. Desha, Sr., Chief Registry Clerk; F. E. Colby, Chief Money Order
Clerk; W. C. Kenake, Chief Mailing Clerk; E. M. Brown, Supt. of De-
livery.

POSTMASTERS ON HAWAII.

Hilo.....Wm. I. Madeira
Pepeekeo.....E. N. Deyo
Honomu.....Wm. Hay
Kawaihae.....C. B. Wells
Mahukona.....E. A. Frazer
Kukuihaele.....W. Horner
Kamuela.....Moses Koki
Kohala.....Miss M. R. Woods
Paauilo.....Anthony Lidgate
Laupahoehoe.....E. W. Barnard
Ookala.....W. G. Walker
Honokaa.....A. B. Lindsay
Mountain View.....E. L. Rackliff
Kalapana.....Dan'l Kaloi
Volcano House.....St. Clair Bidgood

Keauhou.....H. L. Kawewehi
Holualoa.....M. F. Scott
Kailua.....John P. Curts
Kealakeakua.....Miss M. Wassman
Napoopoo.....R. Wassman
Hoopulooa.....D. L. Keliikuli
Hookena.....
Pahala.....T. C. Wills
Honuapo.....Geo. Dawson
Waiohinu.....Anna H. McCarthy
Naalehu.....Carl Wolters
Hakalau.....D. McKenzie
Olao.....John Watt
Papaaloa.....Alfred C. Palfrey
Lalamilo.....W. Vredenberg

POSTMASTERS ON MAUI.

Lahaina.....Arthur Waal
Wailuku.....L. M. Vetleson
Makawao.....A. F. Tavares
Hana.....N. Omsted
Huelo.....W. E. K. Maikai
Puunene.....H. P. Baldwin
Kaupo.....J. S. Garnett
Makena.....J. M. Napoula
Kihei.....Jas. Scott
Honokohau.....R. C. Searle

Kipahulu.....A. Gross
Kahului.....R. W. Filler
Paia.....D. C. Lindsay
Hamakuapoko.....W. F. Mossman
Haiku.....Jas. Lindsay
Peahi.....Geo. Groves
Waihee.....E. K. Kapu
Nahiku.....N. E. Lemmon
Keanae.....D. P. Kapewa
Waiakoa.....

POSTMASTERS ON OAHU.

Aiea.....James A. Low
Pearl City.....J. P. Keppler
Ewa.....Geo. F. Renton
Waipahu.....J. H. Travis
Waianae.....F. Meyer
Waialua.....W. W. Goodale
Laie.....Josiah Keaulana

Hauula.....Moses Aalona
Waimanalo.....A. Irvine
Kahuku.....H. K. Oana
Heeia.....Frank Pahia
Wahiawa.....L. G. Kellogg
Haleiwa.....A. Waikalooa
Waikane.....Sam'l Kaiwi

POSTMASTERS ON KAUAI.

Lihue	Frank Crawford	Kealia	Jno. W. Neal
Koloa	M. A. Rego	Kilauea	I. M. Cox
Hanapepe	H. H. Brodie	Kekaha	O. Omsted
Makaweli	B. D. Baldwin	Waimea	C. B. Hofgaard
Eleele	J. I. Silva	Hanalei	C. H. Willis
Kapaa	Hee Fat		

POSTMASTERS ON MOLOKAI AND LANAI.

Kamalo	D. McCorriston	Keomoku	Chas. Gay
Pukoo	A. T. Bannister	Kalawao	Wm. Clark
Kalae	Ellen Sobey	Kalaupapa	J. S. Wilmington
Pelekunu	Levi Mahiai	Kaunakakai	Lucy Fountain
Halawa	Miss Emma Kane		

POST OFFICE INFORMATION.

Office hours of the General Delivery are from 6 a. m. to 12 o'clock midnight. On legal holidays the time is from 8 a. m. to 9 a. m. On Sundays, from 10 to 11 a. m.

Hours of the Stamp and Registry Departments are from 8 a. m. to 6 p. m., and of the Money Order Department from 9 a. m. to 5 p. m.

The General Delivery is open (except Sundays and holidays) from 6 a. m. till midnight, for the delivery of mail, registering of letters and issuance of Money Orders.

Inter-Island mails close forty-five minutes before the sailing of steamers. For foreign ports the ordinary mails close one hour prior to steamer's departure.

RATES OF POSTAGE, DOMESTIC.

First class matter (letters, etc.)	2 cents per oz. or fraction
Second class (newspapers and periodicals)	1 cent per oz. or fraction
Third class (books, circulars)	1 cent per 2 oz. or fraction
Fourth class (merchandise—limit of weight 4 lbs.)	1 cent per oz. or fraction
Registration Fee (additional postage)	8 cents
Immediate Delivery Stamp (additional to postage)	10 cents
Postal Cards	1 cent each

FOREIGN POSTAGE.

The rate to all foreign countries except Canada and Mexico are: Letters—per half ounce or fractional part, 5 cents; second and third class matter, 1 cent for each 2 ounces or part. Postal Cards, 2 cents each.

Parcels of Merchandise, 12 cents per pound. Limit of weight, 11 pounds.

COURT CALENDAR.

The several terms of Circuit Court are held chronologically throughout the year as follows:

First Mondays in January, April and September, in the city of Honolulu, Island of Oahu; second Wednesdays in March, June and October, in Wailuku, Island of Maui; fourth Wednesdays in April and December, in the town of Kailua, N. Kona, and fourth Wednesdays in July and November, in Kohala, Island of Hawaii; third Wednesdays in February, May and November, in the town of Hilo, Island of Hawaii.

By Circuits the several terms are held as follows:

First Circuit—Island of Oahu.

On the first Mondays of January, April and September.

Second Circuit—Island of Maui.

On the second Wednesdays of March, June and October, in Wailuku.

Third Circuit—Island of Hawaii.

(Hawaii is divided into two Circuits.)

On the fourth Wednesdays of April and December, in Kailua, N. Kona, and on the fourth Wednesdays of July and November, in North Kohala.

Fourth Circuit—Island of Hawaii.

On the third Wednesdays of February, May and November, in Hilo, and on the third Wednesday of August, in Honokaa.

Fifth Circuit—Island of Kauai.

On the fourth Wednesdays of March, July and December, in Lihue.

The terms of the Second, Third and Fifth Circuit Courts may be continued and held from the opening thereof, respectively until and including the twenty-fourth day thereafter, excepting Sundays and legal holidays. Provided, however, that any such term may be extended by the presiding judge for not more than twelve days thereafter.

Terms in First and Fourth Circuits may extend until the commencement of succeeding ones, but the April term of the First Circuit must not go beyond the last Saturday in June.

SUPREME COURT.

The Supreme Court, by Act 22, Laws of 1901, opens its only term throughout the year on the first Monday of October, and thereafter continues to hold sessions.

REFERENCE LIST OF PRINCIPAL ARTICLES

That have appeared in the Hawaiian Annuals, 1875-1904.

(In consequence of the frequent inquiry for various articles that have appeared in the Annuals, their time of issue, etc., with the request that an index thereof be compiled for handy reference, we have classified the principal articles published therein under their respective subjects and trust the list will prove helpful to many.—Editor.)

AGRICULTURAL.

- History of Sugar Industry of Hawaiian Islands, by T. G. T., 1875, p. 34.
History of Coffee Culture in Hawaiian Islands, by T. G. T., 1876, p. 46; 1895, p. 63.
History of Rice Culture in Hawaiian Islands, by T. G. T., 1877, p. 45.
The Hawaiian Islands as a Sugar Producing Country, by T. G. T., 1879, p. 27.
Varieties of Sweet Potato, by T. G. T., 1879, p. 30.
Varieties of Taro, by T. G. T., 1880, p. 28; Taro, by T. G. T., 1887, p. 63.
Cultivated Sugar Canes of the Hawaiian Islands, by A. C. Smith, 1882, p. 61.
Something About Bananas, by Walter Hill, 1883, p. 62.
Fruits and Their Seasons in the Hawaiian Islands, List of, by T. G. T., 1886, p. 49.
Introduction of Queensland Canes, by C. N. Spencer, 1889, p. 91.
Hawaiian Varieties of Bananas, by T. G. T., 1890, p. 79.
Lapsed and Possible Industries in Hawaii-nei, by T. G. T., 1893, p. 105.
Bureau of Agriculture and Forestry, by T. G. T., 1894, p. 92.
Diversified Industries, by Jos. Marsden, 1894, p. 94.
Coffee Outlook in Hawaii, by T. G. T., 1895, p. 65; in Hamakua, 1899, p. 131.
Cotton, a Possible Hawaiian Industry, by L. D. Timmons, 1898, p. 57.
Sugar as an Industry for the Hawaiian Islands, by J. B. Atherton, 1898, p. 106.
Coffee the Coming Industry, by L. D. Timmons, 1898, p. 109.
Agricultural Possibilities, by W. N. Armstrong, 1898, p. 114.
Kona, Hawaii—Its Possibilities, by T. G. T., 1899, p. 127.
The Hawaiian Islands, an Official Report of U. S. Department of Agriculture, by Dr. W. Maxwell, 1900, p. 61.
Farming in Hawaii, by W. B. Thomas, 1901, p. 124.
Organizations for the Promotion of Agriculture in the Hawaiian Islands, by T. F. Sedgwick, 1902, p. 133.
The Hawaii Experiment Station, by Jared G. Smith, 1902, p. 136.
The Agricultural Development of Hawaii, from Census Report, 1903, p. 45.
Ancient Hawaiian Farming, by Rev. W. D. Westervelt, 1903, p. 62.
Diversified Industries Again, by T. G. T., 1904, p. 62.

COMMERCIAL.

- Honolulu Packet Lines with New and Old World, by T. G. T., 1886, p. 45.
Private Signals Honolulu's Commercial Marine, by T. G. T., 1891, p. 98.

- * Fifty Years of Hawaiian Commercial Development, by T. G. T., 1894, p. 58.
 Hawaiian Commercial Development, by T. G. T., 1896, p. 87.
 Hawaii's Eastern Sugar Fleet, by T. G. T., 1897, p. 84.
 * California's Participation in the Commercial Development of Hawaii, by T. G. T., 1898, p. 51.
 Hawaii's Commercial Relations, by J. T. Stacker, 1898, p. 128.
 The Financial Outlook, by A. T. Atkinson, 1898, p. 149.
 Hawaii's Early Divergent Trade, by T. G. T., 1899, p. 146.
 The Internal Commerce of Hawaii, by T. G. T., 1904, p. 51.

EDUCATIONAL.

- The Transit of Venus of 1874, by C. J. Lyons, 1875, p. 27.
 Board of Education—Its Duties, etc., by T. G. T., 1878, p. 38.
 Longitude of Honolulu, by C. J. Lyons, 1879, p. 64.
 Hawaiian Ideas of Astronomy, from Dibble's History, 1882, p. 49.
 Some Hawaiian Proverbs, by H. L. Sheldon, with notes by Rev. C. M. Hyde, 1883, p. 52.
 Helps to the Study of Hawaiian Botany, by Rev. C. M. Hyde, 1886, p. 39.
 The Hawaiian Islands, a Geographical Sketch, by T. G. T., 1889, p. 49.
 The Kamehameha Schools, by Rev. C. M. Hyde, 1890, p. 62.
 Instructions in Ancient Hawaiian Astronomy, by Prof. Alexander, 1891, p. 142.
 Educational Work of American Mission for the Hawaiian People, by Rev. C. M. Hyde, 1892, p. 117.
 Early Industrial Teaching of Hawaiians, by Prof. Alexander, 1895, p. 91.
 Educational System of Hawaii, by A. T. Atkinson, 1896, p. 126.
 A Mid-Pacific College, by M. L. Todd, 1897, p. 50.
 Education in Hawaii, by Prof. Alexander, 1898, p. 76.
 Notes on the Census of 1896, by A. T. Atkinson, 1898, p. 81.
 Physical Characteristics, by F. S. Dodge, 1898, p. 100.
 Hawaii as an Artists' Field, by P. H. Dodge, 1898, p. 116.
 Evolution of Land Titles in Hawaii, by P. H. Weaver, 1899, p. 139.
 Educational Progress and Tendencies, by H. S. Townsend, 1899, p. 160.
 A Suggestive Criticism on Hawaiian Translation, by E. C. Bond, 1900, p. 148.
 An Island Art Center—Oahu College, by Ed. Towse, 1900, p. 123.
 Outline of the Coming Census, by A. T. Atkinson, 1900, p. 150.
 Geology of Oahu, by Rev. S. E. Bishop, 1901, p. 59.
 The Meaning of Some Place Names, by C. J. Lyons, 1901, p. 181.

HISTORICAL.

- History of Hawaiian Post Office, by Em. Fenard, 1876, p. 29.
 Commemorative of Centennial of Discovery, by W. M. Gibson, 1879, p. 24.
 Commemorative Monument to Kamehameha I, by T. G. T., 1880, p. 60.
 History of Honolulu Fire Department, by T. G. T., 1880, p. 65.
 Bits of Unwritten History, by H. L. Sheldon, 1882, p. 28.
 Constitution of Hawaiian Kingdom (of July, 1887), 1888, p. 33.
 History of Umi, Translation, by Prof. Alexander, 1888, p. 78.
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(Corrected to December 5, 1904.)

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 R. Macaulay, M. N. Saunders.
 Harbor Master and Pilot, Hilo Capt. J. Fitzgerald
 Pilot, Kahului Capt. D. F. Nicholson
 Pilot, Hana A. Robach

HONOLULU PARK COMMISSION.

President A. S. Cleghorn
 Secretary L. A. Thurston
 Treasurer W. M. Giffard
 W. G. Irwin, C. S. Holloway, F.
 M. Hatch, E. S. Cunha.

GOVERNMENT SURVEYING CORPS.

Surveyor W. E. Wall
 Chief Assistant O. L. Sorenson
 First Assistant F. E. Harvey
 Second Assistant S. M. Kananui

BOARD OF COMMISSIONERS OF AGRI-
CULTURE AND FORESTRY.

Commissioners—L. A. Thurston, President;
 W. M. Giffard, J. F. Brown, A. W. Car-
 ter, J. D. Dole, C. S. Holloway, ex
 officio, Secretary and Executive Officer.

Division of Entomology.

Alexander Crow
 Superintendent of Entomology
 A. Koebele Consulting Entomologist
 J. Kotinaky Assistant Entomologist
 C. J. Austin Inspector's Assistant
 Miss Caroline A. Potter
 Asst. Clerk and Bibliographer

Division of Forestry.

Ralph S. Hosmer
 Superintendent of Forestry
 David Hauga Field Foreman
 Miss Melika Peterson
 Clerk and Stenographer

DEPARTMENT OF PUBLIC INSTRU-
TION.

Superintendent A. T. Atkinson
 Commissioners—W. D. Alexander, C. L. Hop-
 kins, Mrs. E. W. Jordan, H. von Holt,
 Mrs. W. W. Hall, Dr. J. S. B. Pratt.
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 W. Baldwin, C. King.
 Secretary Dr. C. T. Rodgers
 Asst. Secretary Miss R. C. Davison
 Stenographer and Book Clerk
 Miss Daisy Smith

SCHOOL AGENTS IN COMMISSION.

Hawaii.

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 North Hilo E. W. Barnard
 Puna A. G. Curtis
 Kau Jno. C. Searle
 North Kona M. F. Scott
 South Kona Miss Ella H. Paris
 South Kohala Mrs. E. L. Hays
 North Kohala Dr. B. D. Bend
 Hamakua A. B. Lindsay

Maui.

Lahaina and Lanai.....H. Dickenson
 Wailuku Mrs. E. L. Austin
 Hana F. Wittrock
 Makawao W. O. Aiken
 Molokai O. Tollefson

Oahu.

Honolulu Miss R. C. Davison
 Ewa W. G. Ashley
 Waianae F. Meyer
 Waialua W. W. Goodale
 Koolauloa and Koolau.....H. C. Adams

Kauai.

Waimea and Niihau.....C. B. Hofgaard
 Kolos and Lihue.....A. H. Rice
 Hanalei Mrs. S. B. Deverill
 Kawaihau G. F. Fairchild

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J. W. Pratt Commissioner
 M. T. Lyons Bookkeeper and Clerk
 Henry Peters Land Patent Clerk

Sub-Agents.

1st District, Hilo and Puna.....
 2nd District, Hamakua.....G. H. Williams
 3rd District, Kona and Kau.....
J. Kaelemakule
 4th District, Maui.....W. O. Aiken
 5th District, Oahu.....M. T. Lyons

COURT OF LAND REGISTRATION.

Judge.....Hon. P. L. Weaver
 Registrar Wm. Savidge
 Engineer A. C. Alexander
 Examiners of Title.....E. A. Mott-Smith, C. F.
 Peterson, W. R. Castle, J. M. Monsar-
 rat, L. A. Dickey.

BOARD OF HEALTH.

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 Secretary C. Charlock
 Bacteriologist Dr. J. T. McDonald
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 Registrar Births, Deaths and Marriages
D. P. Lawrence
 Stenographer Miss M. Weir
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 Plumbing Inspector E. G. Keen
 Supt. Leper Settlement.....J. D. McVeigh
 Asst. Superintendent Leper Settlement.....
 J. K. Waiamanu
 Med. Supt. Leper Settlement.....
 Dr. W. J. Goodhue

Sanitary Inspector, Hilo.....D. S. Bowman
 Fish and Food Inspector, Hilo.....
Jno. M. Herring

Government Physicians.

Oahu—Waialua, Dr. Hubert Wood; Ewa, Dr.
 C. A. Davis; Waianae, Dr. Thos. Mc-
 Millan; Koolau, Dr. C. A. Peterson.
 Kauai—Waimea, Dr. C. R. McLean; Ko-
 loa, and Lihue, Dr. E. S. Goodhue; Kea-
 lia and Hanalei, Dr. F. L. Putnam.
 Maui—Makawao, Dr. F. W. McConkey;
 Hana, Dr. McGettigan; Wailuku, Dr. J.
 Weddick; Lahaina, Dr. F. Molony; Ki-
 hei, Dr. R. H. Dinegar.
 Hawaii—Hamakua, Dr. C. B. Greenfield;
 Hilo, Dr. C. L. Stow; N. Hilo, Dr. F.
 Irwin; Oloa, Dr. B. G. Curtis; Puna, Dr.
 J. Holland; Kau, Dr. L. S. Thompson;
 N. Kohala, Dr. B. D. Bond; Kona, Dr.
 E. S. Goodhue.

Board of Medical Examiners.

Dr. C. B. Wood, Dr. A. N. Sinclair, Dr. E.
 C. Waterhouse.

Board of Pharmacy.

R. B. Reedy, Dr. W. L. Moore, S. S. Peck.

INSPECTORS OF ANIMALS.

Oahu—W. Hoogs, W. T. Monsarrat.
 Hawaii—W. H. Shipman, A. Wall, H. B.
 Elliot.
 Maui—L. M. Baldwin, H. B. Weller.
 Kauai—W. H. Rice, Jr.

Board of Dental Examiners.

J. M. Whitney, M. E. Grossman, G. H.
 Huddy.

**BOARD OF MARINE UNDERWRI-
ERS—AGENCIES.**

Boston.....C. Brewer & Co.
 Philadelphia.....C. Brewer & Co.
 New York.....Bruce Cartwright
 Liverpool.....T. H. Davies & Co.
 Lloyds, London.....T. H. Davies & Co.
 San Francisco.....Bishop & Co.
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**BOARD OF FIRE UNDERWRITERS OF
TERRITORY OF HAWAII.**

F. A. Schaefer.....President
 J. A. Gilman.....Vice-President
 A. R. Gurrey.....Secretary
 Bishop & Co.....Treasurer
 T. H. Davies & Co.....Auditor

PACKET AGENCIES.

Boston Packets—C. Brewer & Co.
 Planters' Line, San Francisco—C. Brewer & Co.
 Merchants' Line, San Francisco—Castle & Cooke.
 Canadian and Australian S. S. Line—T. H. Davies & Co.
 Oceanic S. S. Co.'s Line—W. G. Irwin & Co.
 Nippon Yusen Kaisha, Japan to Seattle—W. G. Irwin & Co.
 Pacific Mail S. S. Co.—H. Hackfeld & Co.
 Occidental and Oriental S. S. Co.—H. Hackfeld & Co.
 Bremen Packets—H. Hackfeld & Co.
 Liverpool Packets—H. Hackfeld & Co.
 Hawaiian Packet Line, San Francisco—H. Hackfeld & Co.
 American-Hawaiian S. S. Co.—H. Hackfeld & Co.
 San Francisco and Honolulu—F. A. Schaefer & Co.
 Alexander & Baldwin Line, San Francisco—Alexander & Baldwin.

CHAMBER OF COMMERCE.

President E. D. Tenney
 Vice - President..... F. J. Lowrey
 Secretary and Treasurer..... J. G. Spencer
 Trustees—E. F. Bishop, H. A. Isenberg, W. M. Giffard, C. Hedemann, J. F. Morgan, E. I. Spalding, F. M. Swanzy, C. L. Wight, W. Lanz.

MERCHANTS' ASSOCIATION.

Organized March 18, 1901.

President..... Geo. W. Smith
 Vice - President..... Robt. Catton
 Secretary J. H. Soper
 Treasurer..... W. W. Harris
 J. Wakefield, E. A. McNerny, J. G. Rothwell, H. F. Wichman, and J. F. Humburg, with the officers, form the Directors.

BUILDERS' AND TRADERS' EXCHANGE.

Organized April 25, 1902.

President..... J. H. Craig
 1st Vice - President..... W. W. Harris
 2nd Vice - President..... W. C. Weedon
 Secretary..... J. D. Avery
 Treasurer..... Robt. Catton
 Directors—J. F. Bowler, J. Rosenastein, Jas. Nott, Jr., A. F. Clark, J. Emmeleuth, term expires 1903, and Marston Campbell, L. E. Pinkham, G. F. Bush, S. Stephenson, and J. Ouderkirk, term expires 1906.

HONOLULU STOCK AND BOND EXCHANGE.

Organized August 8, 1898.

President J. F. Morgan
 Vice - President H. Armitage
 Secretary..... W. A. Love
 Treasurer..... Bank of Hawaii

HAWAIIAN SUGAR PLANTERS' ASSOCIATION.

Reorganized Nov. 18, 1885.

President F. M. Swanzy
 Vice - President..... H. P. Baldwin
 Secretary and Treasurer W. O. Smith
 Auditor G. H. Robertson
 Trustees—G. H. Robertson, E. D. Tenney, W. G. Irwin, H. A. Isenberg, S. M. Damon, F. A. Schaefer.

EXPERIMENT STATION OF PLANTERS' ASSOCIATION.

Special Committee in Charge—W. M. Giffard (Chairman), E. D. Tenney, and G. M. Rolph.

Experiment Station Staff—Agricultural and Chemical Division.

Director and Chemist..... C. F. Eckart
 Agriculturist E. G. Clarke
 First Assistant Chemist..... S. S. Peck
 Assistant Chemists—F. Thompson, F. R. Werthmueller, A. E. Jordan.
 Field Foreman T. Lougher

Entomological Division.

Superintendent..... R. C. L. Perkins
 Consulting Entomologists—A. Koebele, Alex. Crow.
 Assistant Entomologists—G. W. Kirkaldy, F. W. Terry and Otto H. Swezey.

LIVE STOCK BREEDERS' ASSOCIATION.

Organized March 17, 1902.

President..... L. von Tempsky
 Vice - President..... A. F. Judd
 Secretary A. M. Brown
 Treasurer..... R. W. Shingle
 Ex. Com.: L. L. McCandless, E. P. Low, H. P. Baldwin, E. A. Knudsen, J. F. Brown.

THE FARMERS' INSTITUTE.

Organized Jan. 25, 1902.

President Jared G. Smith
 Vice - President.....
 Secretary and Treasurer..... J. E. Higgins

HOOULU LAHUI SOCIETY.

Organized, 1878.

President Mrs. D. Kawanakoa
 Vice - President..... D. Kawanakoa
 Secretary Mrs. Manuel Reis
 Treasurer Mrs. J. M. Dowsett

PORTUGUESE CHARITABLE SOCIETY.

Organized Sept. 1, 1902.

President J. D. Marques
 Vice - President..... J. P. Rodrigues
 Secretary C. Faria
 Treasurer J. A. R. Viera

JAPANESE BENEVOLENT SOCIETY.

President Dr. Iga Mori
 Vice - President..... Y. Yamanaka
 Secretary Y. Sogo
 Treasurer Y. Uyeno
 Auditor M. Kishi

CATHOLIC LADIES' AID SOCIETY.

President..... Mrs. A. E. Murphy
 Vice - President..... Mrs. M. Cowes
 Secretary Miss Alice Dougherty
 Treasurer Mrs. C. du Roi

LIBRARY AND READING ROOM ASSOCIATION.

Organized March, Incorporated June 24, 1879.

President C. R. Bishop
 Vice - President..... M. M. Scott
 Secretary H. A. Parmelee
 Treasurer W. C. Parke
 Librarian Miss H. Hillebrand

HAWAIIAN HISTORICAL SOCIETY.

Organized Jan. 11, 1892. Annual Meeting November.

President..... Dr. W. D. Alexander
 Vice - Presidents—Rev. Alex. Mackintosh, J. S. Emerson, Hon. A. S. Hartwell.
 Recording Secretary..... Hon. W. F. Frear
 Cor. Secretary..... Wm. A. Bryan
 Treasurer W. W. Hall
 Librarian..... Miss H. Hillebrand

KILOHANA ART LEAGUE.

Organized May 5, 1894.

President P. H. Dodge
 Vice - President..... A. R. Gurrey, Jr.
 Secretary and Treasurer.....
 Mrs. L. G. Marshall
 Auditor Percy Pond
 Directors.... A. F. Judd, E. A. P. Newcomb

HAWAIIAN MEDICAL ASSOCIATION.

Organized May 24, 1895. Annual Meeting in May.

President Dr. J. T. McDonald
 Vice - President..... Dr. J. H. Dinnegar
 Secretary and Treasurer.....
 Dr. St. D. G. Walters
 Drs. H. C. Sloggett and Geo. W. Herbert,
 with the above officers, constitute the
 Executive Committee.

HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION.

Organized June 17, 1895.

President W. R. Castle
 Vice - President..... F. J. Lowrey
 Secretary W. C. Parke
 Registrar W. D. Alexander
 Treasurer W. J. Forbes

BAR ASSOCIATION OF HAWAII.

Organized June 28, 1899.

President A. G. M. Robertson
 Vice - President..... W. L. Stanley
 Secretary C. F. Clemons
 Treasurer W. L. Whitney
 Auditor W. C. Parke

QUEEN'S HOSPITAL.

Erected in 1860.

President The Governor
 Vice - President..... F. A. Schaefer
 Secretary..... Geo. W. Smith
 Treasurer E. F. Bishop
 Auditor M. P. Robinson
 Physicians—Drs. C. B. Wood, C. B. Cooper,
 W. Hoffman, E. C. Waterhouse.
 Resident Physician..... Dr. F. E. Sawyer
 Executive Committee—A. S. Cleghorn, E. D.
 Tenney, F. A. Schaefer, F. J. Lowrey,
 E. F. Bishop, Geo. W. Smith.

LEAHI HOME.

Organized April 4, 1900.

President Alex. Young
 Vice - Presidents—W. O. Smith, C. H. Atherton.
 Secretary Geo. F. Davies
 Treasurer A. W. T. Bottomley
 Auditor J. P. Cooke
 Medical Supt. ... A. N. Sinclair, M. B. C. M.
 Asst. Supt. H. Taylor
 Matron Mrs. H. Taylor
 Directors—S. B. Dole, Alex. Young, A. L.
 C. Atkinson, W. O. Smith, Geo. Smith-
 ies, Albert Judd.

SAILORS' HOME SOCIETY.

Organized 1853. Meets annually in
December.

President W. F. Allen
Vice - President E. D. Tenney
Secretary F. A. Schaefer
Treasurer E. F. Bishop
Executive Committee—W. W. Hall, C. L.
Wight, H. Waterhouse.
Superintendent of Home.. Capt. Isaiah Bray

HAWAIIAN EVANGELICAL ASSOCIATION

Originally Organized 1823.

Constitution revised 1863. Annual Meeting
June.

President P. C. Jones
Vice-President W. W. Hall
Corresponding Secretary
Doremus Scudder, D. D
Recording Secretary
Rev. Wm. D. Westervelt
Treasurer Theo. Richards
Auditor F. J. Lowrey

WOMAN'S BOARD OF MISSIONS.

Organized 1871.

President Mrs. D. Scudder
Recording Secretary... Miss M. L. Sheeley
Home Cor. Secretary... Mrs. W. L. Moore
Foreign Cor. Secretary... Mrs. C. H. Dickey
Treasurer Mrs. B. F. Dillingham
Auditor W. W. Hall

MISSION CHILDREN'S SOCIETY.

Organized 1851. Annual Meeting in June.

President Dr. A. B. Clark
Vice - President..... W. R. Castle
Secretary Mrs. R. W. Andrews
Recorder R. W. Andrews
Treasurer L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual meeting in April.

President C. J. Day
Vice - President..... C. H. Tracy
Rec. Secretary W. M. Templeton
Treasurer C. H. Atherton
General Secretary H. C. Brown

YOUNG WOMAN'S CHRISTIAN ASSOCIATION.

Organized 1900.

President Mrs. E. W. Jordan
Vice - President..... Mrs. B. F. Dillingham
Secretary Miss L. Templeton
Treasurer Mrs. B. L. Marx
General Secretary Mrs. H. C. Brown
Physical Directress..... Miss Nina Adams
Auditor Miss M. S. Guild

**WOMAN'S CHRISTIAN TEMPERANCE
UNION OF HAWAII.**

Organized December, 1884.

President Mrs. J. M. Whitney
Recording Secretary... Mrs. C. H. Austin
Cor. Secretary Mrs. E. W. Jordan
Treasurer Mrs. L. B. Coan
Auditor W. A. Bowen

**FREE KINDERGARTEN AND CHILDREN'S
AID ASSOCIATION.**

Organized 1895.

President Mrs. A. B. Wood
Vice - Presidents—Mrs. W. F. Allen, Mrs.
S. B. Dole and Mrs. John Usborne.
Recording Secretary
Miss Elsie Waterhouse
Treasurer Mrs. F. M. Swanzy
Financial Secretary. . Mrs. H. E. Coleman
Auditor W. L. Howard

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President S. B. Dole
1st Vice - President... Rev. A. Mackintosh
2nd Vice - President... Mrs. C. du Roi
Secretary Mrs. J. M. Whitney
Treasurer C. H. Cooke
Manager Mrs. E. F. Berger

AMERICAN RELIEF FUND.

Organized 1864. Meets annually Feb. 22.

President W. F. Allen
Vice - President..... R. Lewers
Secretary and Treasurer... W. O. Atwater
Committee—W. F. Allen, R. Lewers, J. Em-
meluth.

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting in June.

President
 Vice - Presidents—Mrs. T. H. Hobron, Mrs. A. Fuller.
 Secretary Mrs. S. M. Damon
 Treasurer Mrs. E. W. Jordan
 Auditor E. W. Jordan

BRITISH BENEVOLENT SOCIETY.

Organized 1869. Meets annually.

President (Ex-officio).....R. de B. Layard
 Vice - President.....Rev. A. Mackintosh
 Secretary R. Catton
 Treasurer Geo. F. Davies
 Relief Committee—G. R. Ewart, J. C. Cook, W. H. Baird, F. Harrison, R. Anderson and H. E. McIntyre, with the above officers, comprise the committee.

GERMAN BENEVOLENT SOCIETY.

Organized August 22, 1856.

President F. A. Schaefer
 Vice - President.....H. A. Isenberg
 Secretary John F. Eckart
 Treasurer B. von Damm
 Auditor H. J. Nolte

HAWAIIAN RELIEF SOCIETY.

Organized 1895.

President Mrs. S. C. Allen
 1st Vice-President.....Mrs. Saml. Parker
 2nd Vice-President.....Miss L. Peabody
 Secretary Mrs. E. S. Cunha
 Treasurer Mrs. J. F. Bowler

HOSPITAL FLOWER MISSION.

President Mrs. E. W. Jordan
 Vice - President.....Mrs. A. F. Judd
 Secretary Mrs. G. F. Davies
 Treasurer Miss von Holt
 Auditor E. W. Jordan

OAHU CEMETERY ASSOCIATION.

President A. S. Cleghorn
 Vice - President.....J. H. Soper
 Secretary D. Dayton
 Treasurer J. R. Galt

**ANTI-SALOON LEAGUE OF HONOLULU,
T. H.**

Organized Mar 4, 1901.

President.....Rev. W. D. Westervelt
 Vice-President.....Mrs. J. M. Whitney
 Secretary
 Treasurer W. A. Bowen

PACIFIC (FORMERLY BRITISH) CLUB.

Organized 1852. Premises on Alakea Street, two doors below Beretania.

President A. S. Cleghorn
 Vice-President Godfrey Brown
 Secretary Jas. G. Spencer
 Treasurer J. M. Dowsett
 Governors: H. M. Whitney, F. Klamp, A. A. Wilder, R. W. Spalding and D. P. R. Isenberg, with the above officers, comprise the Board.

SCOTTISH THISTLE CLUB.

Organized April 27, 1891.

Chief R. Anderson
 Chieftain J. C. McGill
 Secretary C. Dewar
 Treasurer John H. Catton
 Master-at-Arms W. Bell
 Club Room, Oregon Building, Union Street,
 Meeting on Friday, 7:30 p. m.

YOUNG HAWAIIANS' INSTITUTE

Organized Aug. 10, 1894.

President Geo. H. Huddy
 Vice-President and Recording Secretary Man'l K. Cook
 Treasurer..... N. Fernandes
 Marshal J. A. Aheong
 Executive Com.: Geo. L. Desha, David Kanuha and J. K. Kamanoulu.
 Meets 1st and 3rd Thursdays each month, in Kapiolani Building.

HONOLULU SYMPHONY CLUB.

Organized 1902.

President C. Hedemann
 Vice - President P. L. Weaver
 Secretary W. H. M. Nolet
 Treasurer Julius Bayer
 Librarian Carl Mett

YOUNG MEN'S RESEARCH CLUB.

Organized —.

President W. A. Bryan
 Vice - President..... W. C. Parke
 Secretary C. G. Owen

OAHU POLO CLUB.

President W. F. Dillingham
 Vice - President..... A. F. Judd
 Secretary R. W. Shingle
 Treasurer G. C. Potter
 Directors: C. S. Dole and C. W. Dickey.

HAWAII YACHT CLUB.

Organized Oct., 1901.

Commodore H. E. Cooper
 Vice - Commodore H. E. Picker
 Secretary T. H. Petrie
 Treasurer A. Waterhouse
 Port Captain P. L. Weaver
 Measurer J. A. Lyle
 Directors: T. W. Hobron, C. W. Macfarlane,
 H. E. Cooper, T. H. Petrie, O. L. Soren-
 son, A. Waterhouse, H. E. Picker.

MYRTLE BOAT CLUB.

Organized Feb. 5, 1883.

President W. W. Harris
 Vice - President W. O. Parke
 Secretary J. H. Soper, Jr.
 Treasurer Chas. S. Crane
 Captain T. V. King
 Trustees: E. W. Kopke, A. A. Wilder, and
 F. B. Angus.

HEALANI BOAT CLUB.

Incorporated Dec., 1894.

President C. L. Crabbe
 Vice - President A. L. C. Atkinson
 Secretary F. H. Armstrong
 Treasurer Bert Webster
 Captain A. S. Walker
 Vice - Captain Fred Damon
 Commodore Merle Johnson
 Vice - Commodore Harry Murray
 Auditor Carl Rhodes

HAWAIIAN ROWING ASSOCIATION.

President A. L. C. Atkinson
 Vice - President W. W. Harris
 Secretary and Treasurer C. C. Rhodes
 Regatta Committee: C. C. Rhodes, W. W.
 Harris and W. H. Soper.

OAHU COLLEGE.

President—Arthur F. Griffiths, A. B., His-
 tory and Economics.
 Wilbur J. MacNeil, Chemistry and Natural
 Sciences.
 W. A. Anderson—Mathematics.
 Susan Gardner Clark—Greek and Latin.
 Levi Cassius Howland—Commercial Depart-
 ment.
 Anna Luise Hasforth—German and French.
 H. W. Forbes—Latin.
 Katharine Merrill Grayden, A. B.—Greek
 and English.
 Gerard Barton—Director of Music.
 Carolyn Heloise Barton—Instructor in Piano.

Gertrude K. Brown—Piano.
 Florence Kelsey French—Asst. Teacher.
 Mary Charlotte Alexander—Asst. Teacher.
 Frank L. Hadley—Manual Training.
 Mary L. Bettis—Matron.
 Jona. Shaw—Business Manager.
 Claire H. Uecke—Kindergarten Director.
 S. S. Frear and C. V. C. Hall—Assistants.
 Frank Barwick—Supt. of Grounds.

PUNAHOU PREPARATORY.

Principal—Saml. P. French.
 Emogene Hart—Eighth Grade.
 Helen K. Sorenson—Vice-Principal, Seventh
 Grade.
 Mary Gray Borden—Sixth Grade.
 Lulu Grau—Fifth Grade.
 E. A. B. Turner—Fourth Grade.
 Ada Ride Whitney—Third Grade.
 Mary Persis Winne—Second Grade.

KAWAIAHAO GIRLS' SEMINARY.

Miss Kaheryn C. McLeod—Principal.
 Assistants—Misses Colwell, Edna Skinner,
 Nellie Waddington, Annie Forbes, Char-
 lotte P. White.
 Matron—Mrs. E. B. Cunningham.

KAMEHAMEHA GIRLS' SCHOOL.

Principal—Miss Ida M. Pope.
 Instructors—Misses F. N. Albright, N. B.
 Forsythe, S. L. Byington, H. E. Mc-
 Cracken, J. M. Rocheford, M. McPherson,
 F. A. Lemon, M. Lawrence, N.
 Baker, Miss Scholts, Miss Williams, H.
 Keoiki.

KAMEHAMEHA MANUAL SCHOOL.

Principal—P. L. Horne.
 Vice - Principal—U. Thompson.
 Registrar and Business Agent—Walter Clark.
 Assistant Registrar Fred Schneider
 Teachers—F. M. Watson, Ira Eskew, R. C.
 Ingram, Mr. and Mrs. D. Hill, F. G.
 Krauss, Stanley Livingston, Miss G.
 Darling, Miss M. Reed, Miss S. M. Ja-
 cobus, and Miss M. Laughlin, D. Ka-
 nuha, A. Hottendorf.
 Chaplain—Rev. J. L. Hopwood.
 Librarian—Miss S. M. Jacobus.

PREPARATORY DEPARTMENT, KAME-
HAMEHA.

Principal—Miss E. A. Knapp.
 Assistants—Misses Sara A. Smith, Mrs. Rule,
 Maud Post, E. Thomas, Ruth Hunting-
 ton, and Miss. M. Anahu.

HONOLULU (STEAM) FIRE DEPARTMENT.

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid department.

Fire Commissioners—A. Berg, J. A. Gilman, Frank Hustace.

Chief Engineer—Chas. Thurston.

Asst. Engineer—Augustus Deering.

Honolulu Engine No. 1—Location, Central Station, cor. Fort and Beretania streets.

Mechanic Engine No. 2—Location, Central Station, cor. Fort and Beretania streets.

Chemical Apparatus No. 3—Location, Central Station, cor. Fort and Beretania streets.

Protection Hook and Ladder Co. No. 1—Location, Central Station, cor. Fort and Beretania streets.

Engine Co. No. 4—Location, cor. Wilder avenue and Piikoi street.

Engine Co. No. 5—Location, King street, near Reform School.

FIRE ALARM SIGNALS.

12. Cor. King and Fort.
13. Queen and Fort.
14. Bethel and Merchant.
15. Nuuanu and Queen.
16. Nuuanu and King.
17. Nuuanu and Hotel.
21. Fort and Hotel.
23. Alakea and Hotel.
24. Alakea and Merchant.
25. Punchbowl and King.
26. Punchbowl and Queen.
27. South and Queen.
31. Fort and Allen.
32. Foot of Fort.
34. Foot of Alakea.
35. Alakea-Halekauwila.
36. Richards and Queen.
37. Punchbowl and Allen.
41. Alakea and Beretania.
42. Nuuanu and Beretania.
43. Smith and Pauahi.
45. Beretania and River.
46. Maunakea and King.
47. King and River.
51. Iwilei Road, opp. entrance to Stockade.
52. Iwilei Road, opp. Jail.
53. Beretania and King.
54. Liliha and King.
56. Insane Asylum Road and School St.
57. King Street, 200 feet Ewa of Pumping Station.
61. Vineyard and River.
62. Vineyard St. and Nuuanu Ave.
63. Vineyard and Fort.
64. Vineyard and Punchbowl.
65. Beretania and Punchbowl.
67. Alapai and Beretania.
71. Liliha and School.
73. Liliha and Judd.
73. Pauoa and Nuuanu Avenue.
74. Nuuanu and School.
75. Fort and School.
76. Emma and School.

81. Alapai and King.
82. Victoria and King.
83. Kapiolani and Beretania.
84. Kapiolani and Green.
85. Pensacola and Lunalilo.
86. Pensacola and Beretania.
87. Piikoi and King.
91. Thurston Ave. opp. Magazine.
92. Pensacola and Wilder Ave.
93. Lunalilo, opp. Kewalo.
94. Keeaumoku St. and Wilder Ave.
95. Kewalo and Heulu.
96. Makiki and Dominis.
97. College and Dominis.
123. Makiki and Lunalilo.
124. Keeaumoku and Kinau.
125. Keeaumoku and King.
126. Punahou, opp. Bingham.
127. Punahou and King.
128. Sunny South.
132. Waikiki Road and Kalia Road.
134. Kalia Road opp. W. R. Castle Place.
135. Waikiki Road, opp. Moana Hotel.
136. Waikiki Road, opp. Race Track.

PRINCIPAL PUBLICATIONS.

- The Hawaiian Gazette, issued semi-weekly by the Hawaiian Gazette Co., Ltd., on Tuesdays and Fridays. Walter G. Smith, Editor.
- Sunday Advertiser, issued every Sunday morning by the Hawaiian Gazette Co., Ltd. Walter G. Smith, Editor.
- The Daily Pacific Commercial Advertiser, issued by the Hawaiian Gazette Co. every morning (except Sundays). Walter G. Smith, Editor.
- Official and Commercial Record, issued semi-weekly by the Hawaiian Gazette Co., Ltd.
- The Daily Bulletin, issued every evening (except Sundays), by the Bulletin Pub. Co. W. R. Farrington, Editor. Weekly edition issued on Tuesdays.
- The Hawaiian Star, issued every evening (except Sundays), by the Hawaiian Star Newspaper Association. Frank L. Hoogs, Manager. Semi-Weekly issued on Mondays and Thursdays.
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- Sun Ching Bok Wo, semi-weekly, Chinese.
- Aloha Aina (native), issued daily except Sundays. Weekly issued every Saturday. Ed. Like, Editor and Manager.
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- The Yamato Shimbun, Japanese daily.
- Hawaiian Shinpo, issued daily in Japanese.
- Honolulu News, Japanese daily.
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- The Hawaii Herald, issued weekly at Hilo on Thursdays by the Herald Pub. Co. J. T. Stacker, Editor.
- The Maui News, issued weekly at Walluku, Maui. G. B. Robertson, Editor.
- The HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thurum, Editor and Publisher.
-
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- Hawaiian Lodge, No. 21, F. & A. M.; meets in its hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.
- Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.
- Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.
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- Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.
- Nuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.
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- Pacific Lodge No. 822, A. F. & A. M.; meets at Masonic Hall every second Monday of the month.
- Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.
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- Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.
- Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.
- Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.
- Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.
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- Mystic Lodge, No. 2, K. of P.; meets every Wednesday evening at Harmony Hall.
- Section N. 225—Endowment Rank, K. of P.; meets on the Second Saturday of January, July and December in Harmony Hall.
- Hawaiian Council, No. 689, American Legion of Honor; meets on second and fourth Friday evenings of each month in Harmony Hall.
- Oceanic Council No. 777, American Legion of Honor; meets on the first and third Tuesdays of each month.
- Hawaiian Tribe No. 1, Improved Order of Red Men; meets on second and fourth Fridays of each month at San Antonio Hall.
- Court Lunalilo, No. 6600, A. O. of Foresters; meets at San Antonio Hall on first and third Fridays of each month.
- Court Camoes, No. 8110, A. O. F.; meets second and fourth Tuesday evenings of month in San Antonio Hall.
- Geo. W. De Long Post No. 45, G. A. R.; meets the second Tuesday of each month at Odd Fellows' Building, Fort street.
- Geo. C. Wiltse Camp, Sons of Veterans; meets on third Tuesday of each month in San Antonio Hall.
- Capt. Cook Lodge, No. 853, Order Sons of St. George; meets at San Antonio Hall every Monday evening.
- Court Hawaii, No. 3769, I. O. F.; meets third Monday of each month at Harmony Hall, King street.
- Damen Council, Young Men's Institute; meets second and fourth Wednesdays of each month at San Antonio Hall.
- Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, corner of Miller and Beretania streets.
- Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets first and third Wednesdays each month at San Antonio Hall, Vineyard street, near Emma street.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first and third Sundays of each month at 7 p. m. in Harmony Hall. Marine Engineers' Beneficial Association, 100; meets every Monday night at Elks' Lodge.

PLACES OF WORSHIP.

Central Union Church, Congregational (Independent), Corner Beretania and Richards streets; Rev. Wm. M. Kincaid, pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.

Palama Chapel, Rev. A. O. Logan, Superintendent. Sunday school at 9:30 a. m. Gospel services at 7:30 p. m.

Methodist Episcopal Church, corner Beretania and Miller streets. Rev. J. W. Wadman, Pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

The Christian Church, ----- pastor. Sunday services at 11 a. m. and 7:30 p. m. at their house of worship, Alakea street, near King. Sunday-school meets at 9:45 a. m.

Salvation Army, services held nightly at hall cor. Nuananu and King streets, with Sunday services at the usual hours.

Peniel Mission. Hall corner Hotel and Fort streets. Street and hall meetings every day except Monday. Sunday services at 9 a. m. and 3 and 8 p. m.

Roman Catholic Church. Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

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Chinese Congregation. Rev. Kong Yim Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.

St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Usborne, Rector.

Christian Chinese Church, Fort street; Rev. E. W. Thwing, acting Pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.

German Lutheran Church, Beretania St.; Rev. W. Felmy, Pastor. Services on Sunday at 11 a. m.; Sunday-school at 10 a. m.

Portuguese (Protestant) Mission; Rev. A. V. Soares, Pastor. Services every Sabbath at the usual hours. Sunday-school at 3 p. m. Chapel situated corner of Punchbowl and Miller streets.

Reorganized Church of Jesus' Christ, G. J. Waller, Pastor. Services in Mililani Hall. Sunday-school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.

Seventh Day Adventists, Rev. J. H. Behrens, Pastor. Chapel in Printers' Lane. Sabbath-school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.

Japanese Union Church (connected with Hawaiian Board Missions); Rev. S. Kodama, Pastor. Hold services at the Lyceum at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.

Japanese Church, Rev. G. Motokawa, Pastor. Hold services in hall on Kukui street, near St. Louis College.

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Kaunakapili Chapel (Congregational), King street, near Kaiulani School; Rev. W. N. Lono, Pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday-school at 10 a. m.

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(Corrected to December 5th, 1904.)

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 B. D. Bond, Acting Assistant Surgeon, U. S.
 M. H. S., Mahukona, Hawaii.

REAL ESTATE AND BUILDING (page 171) of "Retrospect for 1904," in-
 advertently omits mention of the alteration of "No. 10" store, as it was
 called, adjoining the Boston Building, which had been long contemplated,
 and with the finished Odd Fellows' structure completes the widening of
 Fort street. In cutting off the building front to set it back on the new
 line not only is it modernized in its street frontage but extended in the
 rear which, with its refittings furnishes our Mid-Pacific city with another
 creditable up-to-date store devoted to the fashionable retail trade.

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THOS. G. THRUM,
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HAWAIIAN Almanac and Annual

FOR

—1906—

THE REFERENCE BOOK OF INFORMATION AND STATISTICS

Relating to the Territory of Hawaii, of Value to
Merchants, Tourists and Others.

THOS. G. THRUM,

Compiler and Publisher.

Thirty-Second Year of Publication

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HONOLULU:

1905

1906

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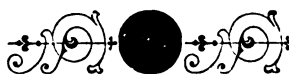
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
JAN.	7 14 21 28	8 15 22 29	9 16 23 30	10 17 24 31	11 18 25	12 19 26	13 20 27
FEB.	11 18 25	12 19 26	13 20 27	14 21 28	15 22	16 23	17 24
MAR.	11 18 25	12 19 26	13 20 27	14 21 28	15 22 29	16 23 30	17 24 31
APR.	15 22 29	16 23 30	17 24	18 25	19 26	20 27	21 28
MAY	13 20 27	14 21 28	15 22 29	16 23 30	17 24	18 25	19 26
JUNE	17 24	18 25	19 26	20 27	21 28	22 29	23 30
JULY	15 22 29	16 23 30	17 24	18 25	19 26	20 27	21 28
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THOS. G. THURM

PUBLISHER

Stationer, Bookseller and News Agent

1063 FORT STREET, HONOLULU, T. H.





**JUDD AND STANGENWALD BUILDINGS,
MERCHANT STREET, CORNER OF FORT, HONOLULU.**

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HAWAIIAN ANNUAL CALENDAR FOR 1906.

Second half of the eighth year and first half of the ninth year since annexation of Hawaii with the United States.

Thirteenth year since the downfall of the Monarchy.

The 128th year since the discovery of the Hawaiian Islands by Captain Cook.

Holidays Observed at the Hawaiian Islands.

*New Year	Jan. 1	*Labor Day (First Monday)	Sept. 3
Chinese New Year.....	Jan. 24	*Regatta Day (Third Saturday).....	Sept. 15
*Washington's Birthday..	Feb. 22	Recognition of Hawaiian Independence	Nov. 28
Good Friday	April 13	Thanksgiving Day.....	Nov. 29
*Decoration Day.....	May 30	*Christmas	Dec. 25
*Kamehameha Day.....	June 11		
*Birthday Hawn. Republic..	July 4		
*American Anniversary....	July 4		

Those distinguished by an Asterisk have been established as Territorial Holidays by Legislative enactment; see Laws 1903, Act 55.

Chronological Cycles.

Dominical Letter.....	G	Solar Cycle	11
Epact	5	Roman Indiction	4
Golden Number	7	Julian Period	6619

Church Days.

Epiphany	Jan. 6	Whit Sunday	June 3
Ash Wednesday.....	Feb. 28	Trinity Sunday	June 10
First Sunday in Lent....	March 4	Corpus Christi.....	June 14
Good Friday	April 13	Advent Sunday.....	Dec. 2
Easter Sunday.....	April 15	Christmas	Dec. 25
Ascension Day.....	May 24		

Eclipses in 1906.

In the year 1906 there will be five eclipses, three of the Sun, and two of the Moon, as follows:

Total eclipse of Moon, Feb. 8, and partial eclipses of the Sun, Feb. 22, and July 2, not visible here.

Total eclipse of Moon, Aug. 4, visible in Honolulu as follows:

Enters penumbra Aug. 3, 11.41.7 p. m.	Eclipse ends 3.21.1 a. m.
Enters shadow Aug. 4, 0.40.5 a. m.	Moon leaves shadow 4.19.8 a. m.
Eclipse begins 1.39.3 a. m.	Middle of eclipse 2.30.2 a. m.

Magnitude of eclipse=1.786 (Moon's diameter=1.0).

Partial eclipse of Sun, Aug. 19, not visible at these islands.

FIRST QUARTER, 1906.

JANUARY.					FEBRUARY.					MARCH.				
D.	H. M.				D.	H. M.				D.	H. M.			
2	First Quar.....	4.22.	3 a.m.		1	First Quar.....	2.00.	9 a.m.		2	First Quar.....	10.58.	3 p.m.	
10	Full Moon.....	6.06.	8 a.m.		8	Full Moon.....	4.15.	7 p.m.		10	Full Moon.....	9.47.	4 a.m.	
17	Last Quar.....	10.18.	8 a.m.		15	Last Quar.....	5.52.	5 p.m.		17	Last Quar.....	1.27.	4 a.m.	
24	New Moon.....	6.39.	3 a.m.		22	New Moon.....	9.27.	2 p.m.		24	New Moon.....	1.24.	9 p.m.	
Day of Mo..	Day of Wk..	Sun Rises...	Sun Sets....		Day of Mo..	Day of Wk..	Sun Rises...	Sun Sets....		Day of Mo..	Day of Wk..	Sun Rises...	Sun Sets....	
1	Mon....	6 37 9 5	29 7		1	Thurs..	6 37 7 5	50 0		1	Thurs..	6 21 1 6	4 2	
2	Tues...	6 38 2 5	30 2		2	Friday..	6 37 4 5	50 6		2	Friday..	6 20 3 6	4 7	
3	Wed....	6 38 5 5	30 8		3	Sat.....	6 37 0 5	51 3		3	Sat.....	6 19 5 6	5 0	
4	Thurs..	6 38 7 5	31 4		4	SUN....	6 36 6 5	51 9		4	SUN....	6 18 7 6	5 4	
5	Friday..	6 38 9 5	32 1		5	Mon....	6 36 2 5	52 5		5	Mon....	6 17 9 6	5 8	
6	Sat.....	6 39 1 5	32 8		6	Tues...	6 35 7 5	53 1		6	Tues...	6 17 0 6	6 2	
7	SUN....	6 39 3 5	33 4		7	Wed....	6 35 3 5	53 7		7	Wed....	6 16 2 6	6 6	
8	Mon....	6 39 5 5	34 1		8	Thurs..	6 34 8 5	54 2		8	Thurs..	6 15 4 6	6 9	
9	Tues...	6 39 7 5	34 8		9	Friday..	6 34 3 5	54 8		9	Friday..	6 14 5 6	7 3	
10	Wed....	6 39 9 5	35 5		10	Sat.....	6 33 8 5	55 3		10	Sat.....	6 13 7 6	7 7	
11	Thurs..	6 40 1 5	36 2		11	SUN....	6 33 3 5	55 8		11	SUN....	6 12 8 6	8 0	
12	Friday..	6 40 2 5	36 9		12	Mon....	6 32 8 5	56 3		12	Mon....	6 11 9 6	8 4	
13	Sat.....	6 40 3 5	37 5		13	Tues...	6 32 2 5	56 8		13	Tues...	6 11 0 6	8 7	
14	SUN....	6 40 4 5	38 2		14	Wed....	6 31 6 5	57 3		14	Wed....	6 10 1 6	9 0	
15	Mon....	6 40 4 5	38 9		15	Thurs..	6 31 0 5	57 9		15	Thurs..	6 9 2 6	9 3	
16	Tues...	6 40 4 5	39 6		16	Friday..	6 30 4 5	58 4		16	Friday..	6 8 3 6	9 7	
17	Wed....	6 40 4 5	40 3		17	Sat.....	6 29 8 5	58 9		17	Sat.....	6 7 4 6	10 0	
18	Thurs..	6 40 4 5	40 9		18	SUN....	6 29 1 5	59 4		18	SUN....	6 6 5 6	10 3	
19	Friday..	6 40 3 5	41 6		19	Mon....	6 28 5 5	59 9		19	Mon....	6 5 6 6	10 6	
20	Sat.....	6 40 3 5	42 3		20	Tues...	6 27 8 6	0 4		20	Tues...	6 4 7 6	10 9	
21	SUN....	6 40 2 5	43 0		21	Wed....	6 27 1 6	0 9		21	Wed....	6 3 8 6	11 2	
22	Mon....	6 40 1 5	43 6		22	Thurs..	6 26 5 6	1 3		22	Thurs..	6 2 9 6	11 6	
23	Tues...	6 39 9 5	44 3		23	Friday..	6 25 8 6	1 8		23	Friday..	6 2 0 6	11 9	
24	Wed....	6 39 8 5	45 0		24	Sat.....	6 25 1 6	2 2		24	Sat.....	6 1 1 6	12 2	
25	Thurs..	6 39 6 5	45 6		25	SUN....	6 24 3 6	2 6		25	SUN....	6 0 1 6	12 5	
26	Friday..	6 39 4 5	46 3		26	Mon....	6 23 5 6	3 0		26	Mon....	5 59 2 6	12 8	
27	Sat.....	6 39 2 5	46 9		27	Tues...	6 22 7 6	3 4		27	Tues...	5 58 3 6	13 1	
28	SUN....	6 39 0 5	47 5		28	Wed....	6 21 9 6	3 8		28	Wed....	5 57 3 6	13 4	
29	Mon....	6 38 7 5	48 1							29	Thurs..	5 56 4 6	13 7	
30	Tues...	6 38 4 5	48 8							30	Friday..	5 55 5 6	14 0	
31	Wed....	6 38 0 5	49 4							31	Sat.....	5 54 6 6	14 4	

Orange plants were first introduced into these islands, at Hawaii, by Vancouver on his first visit, March, 1792, leaving some with Kaiana and some with Keeaumoku.

Pine Apples are first mentioned as being planted by Don F. de P. Marin in January, 1813; also peaches, cherimoyas, fig trees, lemons, and a variety of vegetables.

SECOND QUARTER, 1906.

APRIL					MAY					JUNE				
D.	H.M.				D.	H.M.				D.	H.M.			
1	First Quar.	5	32	0 p.m.	1	First Quar.	8.36	9 a.m.		6	Full Moon	7.41	7 a.m.	
8	Full Moon	7.42	4 p.m.		8	Full Moon	8.32	7 a.m.		13	Last Quar.	9.04	4 a.m.	
15	Last Quar.	10.08	5 a.m.		14	Last Quar.	8.32	7 a.m.		21	New Moon	9.35	6 p.m.	
22	New Moon	5.36	5 a.m.		22	New Moon	9.30	6 p.m.		29	First Quar.	3.48	9 a.m.	
					30	First Quar.	7.53	7 p.m.						
Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets....		Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets....		Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets....	
1	SUN...	5 53	7 6	14 7	1	Tues...	5 29	5 6	24 9	1	Friday.	5 17	3 6	37 8
2	Mon...	5 52	8 6	15 0	2	Wed...	5 28	8 6	25 2	2	Sat.....	5 17	2 6	38 2
3	Tues...	5 51	9 6	15 3	3	Thurs...	5 28	2 6	25 6	3	SUN...	5 17	1 6	38 6
4	Wed...	5 51	0 6	15 6	4	Friday.	5 27	6 6	26 0	4	Mon...	5 17	1 6	39 0
5	Thurs...	5 50	1 6	16 0	5	Sat.....	5 27	0 6	26 4	5	Tues...	5 17	0 6	39 4
6	Friday.	5 49	2 6	16 3	6	SUN...	5 26	4 6	26 8	6	Wed...	5 17	0 6	39 8
7	Sat.....	5 48	3 6	16 6	7	Mon...	5 25	8 6	27 2	7	Thurs...	5 17	0 6	40 1
8	SUN...	5 47	4 6	16 9	8	Tues...	5 25	3 6	27 6	8	Friday.	5 17	0 6	40 5
9	Mon...	5 46	5 6	17 2	9	Wed...	5 24	7 6	28 0	9	Sat.....	5 16	9 6	40 9
10	Tues...	5 45	6 6	17 5	10	Thurs...	5 24	3 6	28 5	10	SUN...	5 16	9 6	41 2
11	Wed...	5 44	8 6	17 8	11	Friday.	5 23	8 6	28 9	11	Mon...	5 17	0 6	41 5
12	Thurs...	5 44	0 6	18 1	12	Sat.....	5 23	4 6	29 3	12	Tues...	5 17	1 6	41 9
13	Friday.	5 43	2 6	18 4	13	SUN...	5 22	9 6	29 8	13	Wed...	5 17	2 6	42 2
14	Sat.....	5 42	3 6	18 8	14	Mon...	5 22	4 6	30 2	14	Thurs...	5 17	3 6	42 5
15	SUN...	5 41	5 6	19 1	15	Tues...	5 22	0 6	30 6	15	Friday.	5 17	5 6	42 8
16	Mon...	5 40	7 6	19 4	16	Wed...	5 21	6 6	31 0	16	Sat.....	5 17	6 6	43 1
17	Tues...	5 39	9 6	19 8	17	Thurs...	5 21	2 6	31 4	17	SUN...	5 17	7 6	43 4
18	Wed...	5 39	0 6	20 1	18	Friday.	5 20	8 6	31 9	18	Mon...	5 17	9 6	43 6
19	Thurs...	5 38	2 6	20 5	19	Sat.....	5 20	5 6	32 3	19	Tues...	5 18	0 6	43 9
20	Friday.	5 37	4 6	20 8	20	SUN...	5 20	2 6	32 7	20	Wed...	5 18	2 6	44 1
21	Sat.....	5 36	6 6	21 2	21	Mon...	5 19	8 6	33 1	21	Thurs...	5 18	4 6	44 4
22	SUN...	5 35	8 6	21 5	22	Tues...	5 19	5 6	33 6	22	Friday.	5 18	6 6	44 6
23	Mon...	5 35	0 6	21 9	23	Wed...	5 19	2 6	34 0	23	Sat.....	5 18	8 6	44 7
24	Tues...	5 34	3 6	22 2	24	Thurs...	5 18	8 6	34 5	24	SUN...	5 19	1 6	44 9
25	Wed...	5 33	6 6	22 6	25	Friday.	5 18	5 6	34 9	25	Mon...	5 19	4 6	45 1
26	Thurs...	5 32	9 6	23 0	26	Sat.....	5 18	3 6	35 4	26	Tues...	5 19	6 6	45 2
27	Friday.	5 32	2 6	23 3	27	SUN...	5 18	1 6	35 8	27	Wed...	5 19	9 6	45 4
28	Sat.....	5 31	4 6	23 7	28	Mon...	5 17	9 6	36 2	28	Thurs...	5 20	2 6	45 5
29	SUN...	5 30	8 6	24 1	29	Tues...	5 17	7 6	36 6	29	Friday.	5 20	5 6	45 6
30	Mon...	5 30	1 6	24 5	30	Wed...	5 17	5 6	37 0	30	Sat.....	5 20	8 6	45 7
					31	Thurs...	5 17	4 6	37 4					

Irish Potatoes were little cultivated at these islands until after 1820. A large red variety was said to have been introduced by Captain Joseph Maughan, who gave some to Boki, who in turn gave some to Hoapili, of Maui, where they flourished in the Kuia district and did much better than on any of the other islands.

THIRD QUARTER, 1906.

JULY.				AUGUST.				SEPTEMBER.			
D.	H.M.			D.	H.M.			D.	H.M.		
5	Full Moon.....	5.57	5 a.m.	4	Full Moon.....	2.29	7 a.m.	2	Full Moon.....	1.06	4 p.m.
12	Last Quar.....	11.42	8 p.m.	11	Last Quar.....	4.17	5 p.m.	10	Last Quar.....	10.23	6 a.m.
21	New Moon.....	2.29	1 a.m.	19	New Moon.....	2.57	5 p.m.	18	New Moon.....	2.03	5 a.m.
28	First Quar.....	8.26	3 a.m.	26	First Quar.....	2.12	5 p.m.	24	First Quar.....	7.41	5 p.m.
Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...
1	SUN..	5 21 16	45 8	1	Wed...	5 32 9	39 0	1	Sat...	5 43 2	16 6
2	Mon...	5 21 4	45 8	2	Thurs.	5 33 0	38 5	2	SUN..	5 43 4	15 7
3	Tues...	5 21 7	45 8	3	Friday.	5 33 7	38 0	3	Mon...	5 43 7	14 8
4	Wed...	5 22 1	45 9	4	Sat...	5 34 1	37 4	4	Tues...	5 43 9	13 9
5	Thurs...	5 22 4	45 8	5	SUN..	5 34 4	36 9	5	Wed...	5 44 2	13 0
6	Friday.	5 22 8	45 8	6	Mon...	5 34 8	36 3	6	Thurs...	5 44 5	12 0
7	Sat...	5 23 1	45 8	7	Tues...	5 35 2	35 7	7	Friday.	5 44 7	11 1
8	SUN..	5 23 5	45 8	8	Wed...	5 35 6	35 1	8	Sat...	5 45 0	10 2
9	Mon...	5 23 8	45 7	9	Thurs.	5 35 9	34 5	9	SUN..	5 45 3	9 2
10	Tues...	5 24 2	45 6	10	Friday.	5 36 3	33 8	10	Mon...	5 45 5	8 3
11	Wed...	5 24 5	45 5	11	Sat...	5 36 6	33 2	11	Tues...	5 45 8	7 3
12	Thurs...	5 24 9	45 4	12	SUN..	5 37 0	32 5	12	Wed...	5 46 0	6 4
13	Friday.	5 25 4	45 3	13	Mon...	5 37 3	31 8	13	Thurs...	5 46 3	5 4
14	Sat...	5 25 8	45 1	14	Tues...	5 37 7	31 1	14	Friday.	5 46 5	4 4
15	SUN..	5 26 2	44 9	15	Wed...	5 38 0	30 4	15	Sat...	5 46 8	3 5
16	Mon...	5 26 6	44 7	16	Thurs.	5 38 3	29 7	16	SUN..	5 47 0	2 5
17	Tues...	5 27 0	44 5	17	Friday.	5 38 7	29 0	17	Mon...	5 47 3	1 6
18	Wed...	5 27 4	44 3	18	Sat...	5 39 0	28 2	18	Tues...	5 47 5	0 6
19	Thurs...	5 27 8	44 1	19	SUN..	5 39 3	27 5	19	Wed...	5 47 8	59 7
20	Friday.	5 28 2	43 8	20	Mon...	5 39 6	26 7	20	Thurs...	5 48 0	58 7
21	Sat...	5 28 6	43 5	21	Tues...	5 39 9	25 9	21	Friday.	5 48 3	57 8
22	SUN..	5 29 0	43 2	22	Wed...	5 40 3	25 1	22	Sat...	5 48 5	56 8
23	Mon...	5 29 4	42 8	23	Thurs.	5 40 6	24 3	23	SUN..	5 48 8	55 9
24	Tues...	5 29 8	42 5	24	Friday.	5 40 9	23 5	24	Mon...	5 49 0	54 9
25	Wed...	5 30 2	42 1	25	Sat...	5 41 2	22 6	25	Tues...	5 49 3	53 9
26	Thurs...	5 30 6	41 7	26	SUN..	5 41 4	21 8	26	Wed...	5 49 6	53 0
27	Friday.	5 31 0	41 3	27	Mon...	5 41 7	20 9	27	Thurs...	5 49 8	52 1
28	Sat...	5 31 4	40 9	28	Tues...	5 42 0	20 1	28	Friday.	5 50 1	51 1
29	SUN..	5 31 8	40 5	29	Wed...	5 42 3	19 2	29	Sat...	5 50 4	50 2
30	Mon...	5 32 2	40 0	30	Thurs.	5 42 6	18 3	30	SUN..	5 50 7	49 2
31	Tues...	5 32 5	39 5	31	Friday.	5 42 9	17 4				

The Turkey Fig was brought to Honolulu by Captain Penhallow from St. Catharines, in 1843, and the same was planted by Mr. Wm. Ladd on the lot adjoining the Damon premises, on Chaplain Lane.

Mango plants were first brought to these islands by Capt. John Meek from Manila, in 1824, in the brig Kamehameha, and divided between Rev. Joseph Goodrich and Don Marin for propagation.

FOURTH QUARTER, 1906.

OCTOBER.					NOVEMBER.					DECEMBER.				
D.	H.M.				D.	H.M.				D.	H.M.			
2	Full Moon	2.18	4 a.m.		8	Last Quar.	11.14	9 p.m.		8	Last Quar.	3.15	1 p.m.	
10	Last Quar.	5.09	3 a.m.		15	New Moon	10.06	5 p.m.		15	New Moon	8.24	3 a.m.	
17	New Moon	0.12	7 p.m.		22	First Quar.	2.09	4 p.m.		22	First Quar.	4.33	7 a.m.	
24	First Quar.	3.19	8 a.m.		30	Full Moon	0.37	3 p.m.		30	Full Moon	8.13	8 a.m.	
31	Full Moon	6.15	8 p.m.											
Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...		Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...		Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	
1 Mon...		5 51 05	48 3		1 Thurs		6 2 85	24 4		1 Sat...		6 20 95	17 2	
2 Tues...		5 51 35	47 4		2 Friday		5 3 35	23 9		2 SUN...		6 21 55	17 3	
3 Wed...		5 51 65	46 5		3 Sat...		6 3 85	23 3		3 Mon...		6 22 25	17 4	
4 Thurs		5 51 85	45 6		4 SUN...		6 4 35	22 8		4 Tues...		6 22 85	17 5	
5 Friday		5 52 15	44 7		5 Mon...		6 4 95	22 4		5 Wed...		6 23 55	17 7	
6 Sat...		5 52 45	43 8		6 Tues...		6 5 45	21 9		6 Thurs		6 24 25	17 9	
7 SUN...		5 52 75	42 9		7 Wed...		6 6 05	21 4		7 Friday		6 24 85	18 1	
8 Mon...		5 53 15	42 0		8 Thurs		6 6 55	21 0		8 Sat...		6 25 45	18 4	
9 Tues...		5 53 45	41 1		9 Friday		6 7 15	20 7		9 SUN...		6 26 05	18 7	
10 Wed...		5 53 85	40 2		10 Sat...		6 7 65	20 2		10 Mon...		6 26 65	19 0	
11 Thurs		5 54 15	39 4		11 SUN...		6 8 25	19 9		11 Tues...		6 27 35	19 3	
12 Friday		5 54 55	38 6		12 Mon...		6 8 95	19 5		12 Wed...		6 27 95	19 6	
13 Sat...		5 54 85	37 7		13 Tues...		6 9 55	19 2		13 Thurs		6 28 55	19 9	
14 SUN...		5 55 15	36 9		14 Wed...		6 10 15	18 9		14 Friday		6 29 15	20 3	
15 Mon...		5 55 55	36 1		15 Thurs		6 10 75	18 6		15 Sat...		6 29 75	20 6	
16 Tues...		5 55 85	35 3		16 Friday		6 11 35	18 3		16 SUN...		6 30 35	21 0	
17 Wed...		5 56 25	34 5		17 Sat...		6 11 95	18 0		17 Mon...		6 30 85	21 4	
18 Thurs		5 56 65	33 7		18 SUN...		6 12 55	17 8		18 Tues...		6 31 45	21 9	
19 Friday		5 56 95	32 9		19 Mon...		6 13 15	17 6		19 Wed...		6 31 95	22 3	
20 Sat...		5 57 35	32 2		20 Tues...		6 13 75	17 4		20 Thurs		6 32 55	22 8	
21 SUN...		5 57 75	31 4		21 Wed...		6 14 35	17 2		21 Friday		6 33 05	23 3	
22 Mon...		5 58 25	30 7		22 Thurs		6 15 05	17 1		22 Sat...		6 33 55	23 8	
23 Tues...		5 58 65	30 0		23 Friday		6 15 75	17 1		23 SUN...		6 34 05	24 3	
24 Wed...		5 59 15	29 3		24 Sat...		6 16 35	17 0		24 Mon...		6 34 55	24 8	
25 Thurs		5 59 55	28 7		25 SUN...		6 17 05	17 0		25 Tues...		6 35 05	25 3	
26 Friday		6 0 05	28 0		26 Mon...		6 17 65	17 0		26 Wed...		6 35 55	25 9	
27 Sat...		6 0 45	27 4		27 Tues...		6 18 25	17 0		27 Thurs		6 35 95	26 5	
28 SUN...		6 0 95	26 7		28 Wed...		6 18 95	17 0		28 Friday		6 36 35	27 0	
29 Mon...		6 1 45	26 1		29 Thurs		6 19 65	17 1		29 Sat...		6 36 65	27 6	
30 Tues...		6 1 85	25 5		30 Friday		6 20 25	17 1		30 SUN...		6 37 05	28 2	
31 Wed...		6 2 35	24 9							31 Mon...		6 37 35	28 8	

Coffee plants were introduced here by Lord Byron in the *Blonde* in 1825, from Rio Janeiro, and were set out and formed the first plantation in Manoa valley. Some plants were also introduced by Mr. Charlton, British Consul, from Manila, which were also set out in Manoa. Still later a Captain Little brought some from Manila or Batavia, the result of which is not of record.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1 1/4	Pearl River Bar	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N.W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena. 58	

HONOLULU TO

Lae o ka Laau, S.W. Pt. Molokai	35	Kawaihae, Hawaii	144
Kalaupapa, Leper Settlement...	52	Kealakekua, " (direct).....	157
West Point of Lanai.....	50	" " (via Kawaihae).....	186
Lahaina, Maui	72	S. W. pt. Hawaii " "	233
Kahului, "	90	Punaluu, "	250
Hana, "	128	Hilo, " (direct).....	192
Maalaea, "	86	" " (windward).....	206
Makena, "	96	" " (via Kawaihae).....	230
Mahukona, Hawaii	134		

HONOLULU TO

Nawiliwili, Kauai	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealakekua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii	50	Kaalualu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S.W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.....	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N.E. Cape.....	4890
Samoa	2290	Victoria, B. C.....	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

Revised for the Annual in accordance with latest Government Survey measurements. The outer column of figures indicates the distance between points.

ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

Miles.		Miles. Inter.	
Bishop's corner (Waikiki).....	3.2	Kahana	26.4 4.5
Waikiki Villa	3.6	Punaluu	28.4 2.0
Race Course	4.5	Hauula	31.4 3.0
Diamond Head	5.9	Laie	34.4 3.0
Kaalawai	6.0	Kahuku Mill	37.2 2.8
Miles. Inter.		Kahuku Ranch	40.0 2.8
Thomas Square	1.0		
Pawaa corners	2.0 1.0	Moanalua	3.4
Kamoliili	3.3 1.3	Kalauao	7.4 4.0
Telegraph Hill	5.0 1.7	Ewa Church	10.2 2.8
Waialae	6.2 1.2	Kipapa	13.6 3.4
Niu	8.8 2.6	Kaukonahua	20.0 6.4
Koko Head	11.8 3.0	Leilehua	20.0
Makapuu	14.8 3.0	Waialua	28.0 8.0
Waimanalo	20.8 6.0	Waimea	32.4 4.4
Waimanalo, via Pali.....	12.0	Kahuku Ranch	39.4 7.0
		Ewa Church	10.2
Nuuanu Bridge	1.1	Waipio (Brown's)	11.2 1.0
Mausoleum	1.5 0.4	Hoaeae (Robinson's) ..	13.5 2.3
Electric Reservoir	2.7 1.2	Barber's Point, L. H. .	21.5 8.0
Luakaha	4.3 1.6	Nanakuli	23.5 2.0
*Pali	6.2 1.9	Waianae Plantation ..	29.9 6.4
Kaneohe (new road).....	11.9 5.7	Kahanahaiki	36.9 7.0
Waiahole	18.9 7.0	Kaena Point	42.0 5.1
Kualoa	21.9 3.0	Waialua to Kaena Pt. .	12.0

OAHU RAILWAY: DISTANCES FROM HONOLULU DEPOT TO

Miles.		Miles.	
Moanalua	2.76	Waipio	13.58
Puuloa	6.23	Waikele	14.57
Halawa	8.14	Hoaeae	15.23
Aiea	9.37	Ewa Plantation Mill. .	18.25
Kalauao	10.20	Waianae Station	33.30
Waiau	10.93	Kaena Point	44.50
Pearl City	11.76	Waialua Station	55.80
Waiawa	12.52	Kahuku Plantation	69.50

ISLAND OF KAUAI.

NAWILIWILI TO

Miles. Inter.		Miles. Inter.	
Koloa	11.0	Waialua River	7.7 4.4
Lawai	13.8 2.8	Kealia	11.9 4.2
Hanapepe	20.0 6.2	Anahola	15.7 3.8
Waimea	27.1 7.1	Kilauea	23.6 7.9
Waiawa	31.5 4.4	Kalihiwai	26.6 3.0
Nuololo	44.8 13.3	Hanalei	31.8 5.2
		Wainiha	34.8 3.0
Hanamaulu	3.3	Nuololo (no road).....	47.0 12.2

*Pali distance is by the old Road, new measurements are not of record.

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	3.5		Paia	5.5	
Paia	5.5	2.0	Makawao Court House..	10.5	5.0
Hamakuapoko Mill	8.6	3.1	Olinda	16.7	6.2
Haiku	10.2	1.6	Haleakala, edge Crater..	22.5	5.8
Halehaku	16.0	5.8	Haleakala Summit	24.7	2.2
Huelo	19.5	3.5			
Keanae	27.2	7.7	Maalaea	9.9	
Nahiku	32.7	5.5	End of Mountain Road..	15.4	5.5
Ulaino	36.3	3.6	Olowalu	19.6	4.2
Hana	42.3	6.0	Lahaina Court House..	25.5	5.9
Hamoa	45.3	3.0			
Waiiua	48.9	3.6	Waiehu	3.3	
Kipahulu Mill	52.2	3.3	Waihee	4.8	1.5
Mokulau	56.6	4.4	Kahakuloa	10.1	5.3
Nuu	62.1	5.5	Honokohau	14.5	4.4
			Honolua	17.4	2.9
Wailuku	3.1		Napili	20.0	2.6
Waikapu	5.5	2.4	Honokawai	23.8	3.8
Maalaea	9.9	4.4	Lahaina Court House..	29.3	5.5
Kalepolepo	14.6	4.7			
Mana	22.3	7.7	MAKENA TO		
Ulupalakua	25.6	3.3	Ulupalakua	3.3	
Kanaio	28.9	3.3	Kamaole	7.1	3.8
Pico's	35.5	6.6	Waiakoa	12.1	5.0
Nuu	41.0	5.5	Foot of Puu Pane.....	15.8	3.7
			Makawao Court House..	21.8	6.0

ISLAND OF HAWAII.

WAIMEA COURT HOUSE TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary	4.5		Hilo, via Humuula St'n..	5.40	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep St'n....	14.0	
Mana	7.7		Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Humuula Sheep Station,			Kohala Court House....	22.0	5.0
via Laumaia	47.5	11.0	Mahukona	22.0	
Auwaiakewa	12.5		Puako	12.0	
Humuulu Sheep Station..	29.0	16.5			

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.....	4.00	Union Mill	2.25
Niulii Mill	2.80	Union Mill R. R. Station.....	3.25
Halawa Mill	1.15	Honomakau	2.55
Hapuu Landing	2.56	Hind's, Hawaii	3.25
Kohala Mill	.50	Hawi R. R. Station.....	4.25
Kohala Mill Landing.....	1.50	Honoipu	7.20
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0		Dr. Wight's Corner....	11.5	1.1
Union Mill Corner....	8.0	1.0	Niulii Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch..	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	
Kohala Mill Corner....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4		Mana, Parker's	19.5
Puuiiki, Spencer's	7.7	3.3	Keawewai	6.0
Waiaka, Catholic Church	9.5	1.8	Puuhue Ranch	10.0
Puuopelu, Parker's	10.8	1.3	Kohala Court House	15.0
Waimea Court House....	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA.—KEALAKEKUA TO

Keauhou	6.0		Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopuloo	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau	24.8	3.2
Ke Au a Lono bound'y.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0		Honaupo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

(By new road.)

	Miles.		Miles.
Keaau, Forks of Road....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiki (Rycroft's)	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau....	56.0
Kamaili	26.0	Sand Hills, Naawale, old road..	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.8
Edge of Woods.....	4.1	Mason's	17.5
Cocoonut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolii Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road....	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Hakulau, east edge gulch....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoehoe Church	26.7

PRINCIPAL ELEVATIONS.

15

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kaala Church	6.8	Stream at Kukuihaele.....	26.0
Kukaiau Gulch	8.0	Edge Waipio	26.5
Horner's	8.5	Bottom Waipio	27.0
Catholic Church, Kainehe.....	9.0	Waimanu (approximate)	32.5
Notley's, Paauiio	10.5	Kukuihaele to Waimea (ap-	
Kaumoalii Bridge	12.5	proximate)	10.5
Bottom Kalopa Gulch	14.0	Gov't Road to Hamakua Mill..	1.5
Wm. Horner's, Paauiio.....	15.2	Gov't Road to Paauiio Mill....	1.0
Paauiio Church	16.3	Gov't Road to Pacific Sugar	
Holmes' Store, Honokaa.....	18.0	Mill, Kukuihaele	0.7
Honokaia Church	20.5		

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluaaha	13.5		

TABLE OF ELEVATIONS OF PRINCIPAL LOCALITIES THROUGHOUT THE ISLANDS.

(From Government Survey Records; Measurements from mean Sea Level.)

OAHU PEAKS.

	Feet.		Feet.
Kaala, Waianae Range.....	4030	Telegraph Hill or Kaimuki...	291
Palikea, Waianae Range	3111	Koko Head, higher crater....	1205
Konahuanui Peak, S. of Pali..	3105	Koko Head, lower crater....	644
Lanihuli Peak, N. of Pali.....	2781	Makapuu, east point of island.	665
Tantalus or Puu Ohia.....	2013	Mokapu, crater off Kaneohe..	681
Awawaloa (Olympus), Manoa.	2447	Olomana, sharp peak, Kailua..	1645
Round Top or Ualakaa.....	1049	Maelieli, sharp peak, Heeia...	715
Punchbowl Hill or Puowaina..	498	Ohulehule, sh'p peak, Hakipuu	2263
Diamond Head or Leahi.....	761	Koolau R'ge, above Wahiawa.	2381

LOCALITIES NEAR HONOLULU.

Nuuanu Road, cor. School St..	40	Nuuanu Road, Queen Emma's..	358
" " second bridge...	77	" " cor. above Elec-	
" " cor. Judd St...	137	tric Light Works.....	429
" " Cemetery gate...	162	Nuuanu Road, large bridge ...	735
" " Mau's'l'm gate.	206	" " Luakaha gate...	848
" " Schaefer's gate.	238	" " Pali, old station	1214

MOLOKAI ETC.

Kamakou Peak	4958	Kaolewa Pali, overlooking	
Oloku Peak	4600	Leper Settlement	2100
Kaunuohua	4535	Meyer's, Kalae	1485
Kalapamoa	4004	Mauna Loa, near Kaunakakai.	1382
Puu Kolekole	3951	Kualapuu Hill	1018
Kaulahuki	3749	Kahoolawe (Moaui Hill)....	1472
Kaapahu Station	3563	Molokini	160
		Lanai	3400

HAWAII.

	Feet.		Feet.
Mauna Kea	13,825	Hiilawe Falls	1700
Mauna Loa	13,675	Parker's, Mana	3505
Hualalai	8275	Honokaa Store	1100
Kohala Mountains	5489	Lower edge forest, Hamakua.	1700
Kilauea Vol. House, by level- ing	3971	Lower edge forest, Hilo.....	1200
Kulani, near Kilauea.....	5574	Laupahoehoe Pali	385
Kalaiheia	6660	Maulua Pali	406
Aahuwela, near Lahaina.....	7747	Kauku Hill	1964
Hitchcock's, Puakala	6325	Puu Alala	762
Ahumo'a	7034	Halai Hill	347
Waimea Court House.....	2669	Puu o Nale, Kohala.....	1797
Waipio Pali, in Mountain....	3000	B. D. Bond's, Kohala.....	521
Waipio Pali, on S. (Road)...	900	Anglican Church, Kainaliu...	1578
Waipio Pali, on N. side.....	1394	Puu Enuhe, Kau	2327
Waimanu, at sea	1600	Puu Hoomaha, Kau.....	6636
Waimanu, in mountain.....	4000	Puu ka Pele, Kau.....	5768
Waiau Lake, Mauna Kea....	1600	Kaluamakani, Hamakua	7584
Poliahu, Mauna Kea.....	13,646	Kapoho Hill, Puna	432
Kalaieha, N. Hilo.....	6738	Kaliu Hill, Puna	1065
		Olai Trig. Station.....	622

MAUI.

Haleakala (Red Hill).....	10,032	Puu Kapuai, Hamakua.....	1150
Mt. Kukui, West Maui.....	5790	Puu o Umi, Haiku.....	629
Piiholo, Makawao	2256	Puu Pane, Kula	2568
Puu Olai (Miller's Hill).....	355	Lahainaluna Seminary	600
Puu Io, near Ulupalakua.....	2841	Kauiki, Hana	392
Ulupalakua, about	1800	"Sunnyside," Makawao	930
Olinda, Makawao	4043	Paia Foreign Church, about..	850
Puu Pane, Kahikinui	3988	Eka, crater in Waihee.....	4500
Puu Nianiau, Makawao.....	6850	Keakaamanu, Hana	1250

KAUAI.

Haupu	2030	Mt. Waialeale, central peak..	5250
Kilohana, about	1100	Namolokama	4200

NOTE.—A large number of approximate elevations of stations where rain records are kept may be found in the Rain Tables in this Annual.

Area, Elevation and Population of the Hawaiian Islands.

(As revised by latest Government Survey Records.)

Islands.	Area in Statute Square Miles.	Acres.	Height in Feet.	Population in 1900.
Hawaii.....	4,015	2,570,000	13,825	46,843
Maui.....	728	466,000	10,032	24,797
Oahu.....	598	384,000	4,030	58,504
Kauai.....	547	348,000	5,250	20,562
Molokai.....	261	167,000	4,958	2,504
Lanai.....	139	86,000	3,400	619
Niihau.....	97	62,000	1,300	172
Kahoolawe.....	69	44,000	1,472	.....

Total area of Hawaiian Islands, 6,449 miles.

The outlying islets on the N. W. may amount to 6 square miles.

KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.
 Circumference, 41,500 feet, or 7.85 miles.
 Extreme Width, 10,300 feet, or 1.95 miles.
 Extreme Length, 15,500 feet, or 2.93 miles.
 Elevation, Volcano House, 4,000 feet.

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.
 Circumference, 50,000 feet, or 9.47 miles.
 Length, 19,500 feet, or 3.7 miles.
 Width, 9,200 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

HALEAKALA, MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.
 Circumference, 105,600 feet, or 20 miles.
 Extreme Length, 39,500 feet, or 7.48 miles.
 Extreme Width, 12,500 feet, or 2.37 miles.
 Elevation to summit, 10,032 feet.
 Elevation of principal cones in crater, 8,032 and 1,572 feet.
 Elevation of cave in floor of crater, 7,380 feet.

IAO VALLEY, MAUI.

Length (from Wailuku), about 5 miles.
 Width of Valley, 2 miles.
 Depth, near head, 4,000 feet.
 Elevation of Puu Kukui, above head of Valley, 5,700 feet.
 Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

Standard and Local Time.

The Standard Time of the Hawaiian Islands is that of Longitude 157° 30' W., 10 h. 30 m. slower than Greenwich Time. The time of sunrise and sunset given in the tables is of course local time; to correct this to standard time, add or subtract a correction corresponding with the differences between 157° 30' and the longitude of the station.

The corrections would be for the following stations:

Niihau	+10:8 m	Wailuku, Maui	— 4:0 m
Mana, Kauai	+ 9:0 m	Haiku, Maui	— 4:8 m
Koloa, Kauai	+ 7:9 m	Hana, Maui	— 6:0 m
Kilauea, Kauai	+ 7:3 m	Kailua, Hawaii	— 6:2 m
Waialua, Oahu	+ 2:5 m	Kohala, Hawaii	— 7:0 m
Kahuku, Oahu	+ 2:0 m	Kukuihaele, Hawaii	— 8:0 m
Honolulu, Oahu	+ 1:5 m	Punaluu, Hawaii	— 8:0 m
Kalae, Molokai	— 2:0 m	Ookala, Hawaii	— 9:0 m
Lanai	— 2:5 m	Hilo, Hawaii	— 9:8 m
Lahaina, Maui	— 3.0 m		

LATEST CENSUS—HAWAIIAN ISLANDS.

From Census Bulletin, Washington, D. C., 1900.

Total Population by Districts and Islands—Comparative 1900 and 1896.

HAWAII.		1900	1896	OAHU.		1900	1896
Hilo		19,785	12,878	Honolulu		39,306	29,920
Puna		5,128	1,748	Ewa		9,689	3,067
Kau		3,854	2,908	Waianae		1,008	1,281
North Kona		3,819	3,061	Waialua		3,285	1,349
South Kona		2,372	2,327	Koolauloa		2,372	1,835
North Kohala		4,366	4,125	Koolaupoko		2,844	2,753
South Kihala		600	558				
Hamakua		6,919	5,680			58,504	40,205
		46,843	33,285	KAUAI.			
MAUI.				Waimea		5,714	4,431
Lahaina		4,832	2,398	Niihau		172	164
Wailuku		7,953	6,072	Koloa		4,564	1,835
Hana		5,276	3,792	Kawaihau		3,220	2,762
Makawao		7,236	5,464	Hanalei		2,630	2,775
		24,797	17,726	Lihue		4,434	3,425
		3,123	2,412			20,734	15,392
Molokai and Lanai				Total whole group		154,001	109,020

Comparative Table of Nationality of Population of Hawaiian Islands at various census periods since 1872.

Nationality	1872	1878	1884	1890	1896	1900
Natives	49,944	44,088	40,014	34,436	31,019	29,787
Part Hawaiians	1,487	3,420	4,218	6,186	8,485	7,848
Chinese	1,988	5,916	17,937	15,301	19,382	25,762
Americans	889	1,276	2,066	1,928	2,266	
Hawaiian-born Foreigners ..	849	947	2,040	7,495	13,733	7,283
British	619	883	1,282	1,344	1,538	1,730
Portuguese	395	436	9,377	8,602	8,232	15,675
German	224	272	1,600	1,434	912	1,154
French	88	81	192	70	75	
Japanese			116	12,360	22,329	61,115
Norwegian			362	227	216	410
Other foreigners	364	666	416	419	424	2,584
Polynesian			965	588	409	653
Total	56,897	57,985	80,578	89,990	109,020	154,001

Population of Honolulu at various census periods.

1884	20,487	1896	29,920
1890	22,907	1900	39,306

Foreign Born Population of Hawaii, 1900, distributed according to country of births:

As reported for the Annual by the Census Bureau, Washington, D. C.

Country	Hawaii	Kauai and Niihau*	Lanai and Maui	Molokai	Oahu	Total
Atlantic Islands	522	76	154	12	392	1,156
Austria	99	26	64	....	36	225
Canada (Engl.)	79	11	9	2	238	339
China	4,202	3,265	2,988	77	11,209	21,741
England	142	35	49	6	507	739
Germany	135	334	71	11	603	1,154
Ireland	25	9	15	4	172	225
Japan	21,314	9,736	10,465	382	14,337	56,234
Norway and Denmark	31	50	44	6	139	270
Pacific Islands	49	63	161	11	309	593
Portugal	2,217	727	1,032	6	2,530	6,512
Scotland	163	39	39	1	185	427
Spain	54	12	27	....	109	202
Sweden	40	4	9	2	85	140
Other Countries	162	85	64	9	503	823
Total	29,234	14,472	15,191	529	31,354	90,780

*Niihau's share of Foreign born is 3; one each Scotch, Japanese and one other.

Native Born Population of Hawaii, 1900.

The total native born Population of Hawaii is 63,221, which is made up as follows:

Hawaiian	29,787	Negroes	178
Part Hawaiian	7,843	South Sea Islanders	60
Caucasians	7,283	Japanese	4,881
Portuguese	9,163	Chinese	4,021

Comparative Table of Population, Hawaiian Islands—1853-1900.

Islands	CENSUS								
	1853	1860	1866	1872	1878	1884	1890	1896	1900
Hawaii	24,450	21,481	19,808	16,001	17,034	24,991	26,754	33,285	46,843
Maui	17,574	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797
Oahu	19,126	21,275	19,799	20,671	20,236	28,068	31,194	40,205	58,504
Kauai	6,991	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562
Molokai	3,607	2,864	2,299	2,349	2,581	....	2,652	2,307	2,504
Lanai	600	646	394	348	214	2,614	174	105	619
Niihau	790	647	325	233	177	....	216	164	172
Kahoolawe	....	....	....	....	....	....	....	....	....
Total	73,138	69,800	62,959	56,897	57,985	80,578	89,990	109,020	154,001
All Foreigners	2,119	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366
Hawaiians	71,019	67,084	58,765	51,531	47,508	44,232	40,622	39,504	37,635

*Including Niihau.

SCHOOL STATISTICS, TERRITORY OF HAWAII.

From Reports of the Superintendent of Public Instruction.

NUMBER OF SCHOOLS, CLASS, ETC., 1904.

ISLANDS	PUBLIC SCHOOLS					PRIVATE SCHOOLS		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii	57	132	2,616	2,122	4,738	10	36	1,078
Oahu	35	149	2,847	2,329	5,176	30	164	2,811
Maui and Lanai ..	31	66	1,283	1,130	2,413	12	37	780
Kauai and Niihau	31	43	1,056	830	1,886	5	10	163
Molokai	9	9	145	109	254	..	..	....
Totals	147	399	7,947	6,520	14,467	57	247	4,832

NUMBER OF SCHOOLS ACCORDING TO GRADE FOR THE YEARS 1904-05.

GRADES	1904		1905		Total 1905
	Public	Private	Public	Private	
Kindergartens	..	18	..	18	18
Primary Schools.....	32	24	36	24	60
Primary-Grammar Schools.....	110	..	113	..	113
High Schools.....	1	..	1	..	1
Normal Schools	1	..	1	..	1
Industrial Schools	1	..	1	2	3
Seminaries (female).....	..	13	..	13	13
Orphanages	..	1	..	1	1
Reform Schools	2	..	2	..	2
Colleges.....	..	2	..	2	2
Totals.....	147	60	154	60	214

NATIONALITY OF PUPILS, 1904-05.

	1904	1905		1904	1905
Hawaiians	4,877	4,972	Chinese	1,650	1,985
Part Hawaiians ..	3,234	3,284	Japanese	2,920	3,609
Americans	877	5,906	Porto Ricans	556	650
English	205		Other Foreigners ..	189	
Germans	321		Total	19,299	20,406
Portuguese	4,345				
Scandinavian	125				

The nationality of teachers in all schools of the Islands, 1905, was as follows: Hawaiian, 81; Part Hawaiian, 105; Whites, 440; Chinese, 27; Japanese, 7; other Foreigners, 27; Total, 687.

SCHOOL STATISTICS, 1905.—Continued.**ENROLLMENT IN THE PUBLIC SCHOOLS IN MANUAL TRAINING, ETC.**

Sewing	6,507	Lauhala and Bamboo....	645
Knife Work	392	Mat Weaving	145
Agriculture	10,250	Other Manual Training...	1,489
Drawing	1,002	Singing	15,000

Average daily attendance of pupils enrolled in public schools	87 %
Average monthly wage paid to public school teachers.....	\$ 51.00
Number of public school buildings and school houses	184
Number of teachers' cottages	79
Total value of all public school buildings, school houses and teachers' cottages, excluding land	\$ 810,000.00
Total value of all private school property	\$ 1,333,000.00

CHURCH STATISTICS, 1905.

From Report of Superintendent of Public Instruction.

DENOMINATIONS	No. of Churches	No. of Pastors or Priests	No. of Members	No. of Sund. Schs.	No. of Sunday School Scholars	Value of Church Property
Christian Church	5	1	150	4	150	\$ 13,500
Methodist Epispl. Church	12	16	1,000	20	1,000	33,000
Latter Day Saints	20	220	5,133	63	2,404	16,784
German Lutheran Church	2	2	250	2	28	50,000
Seventh Day Adventists.	1	1	30	1	40	6,000
Prot. Episcopal Church.	10	16	2,500	14	723	149,000
Buddhists	21	15	40,000	...	...	58,200
Congregational Church	90	71	6,325	55	5,872	640,000
Roman Catholic Church.	115	75	12,000	76	2,270	300,000
Total	276	417	67,388	235	12,487	1,266,484

VITAL STATISTICS, TERRITORY OF HAWAII.

For the Fiscal Year ending June 30, 1905. Summarized from Board of Health Reports.

ISLANDS, ETC.	Births	Marriages	Deaths
Honolulu, Oahu	595	562	864
Other Districts of Oahu	207	23	279
Hilo, Hawaii	369	144	330
Other Districts of Hawaii	500	135	434
Mau, Molokai, etc.	395	228	467
Kauai and Niihau	424	88	266
Total, 1904-05	2,490	1,180	2,640
" 1903-04	2,355	1,182	2,367
" 1902-03	2,386	996	2,581
" 1901-02	2,346	1,324	2,747

Import Values from U. S., Domestic and Foreign Mdse., for fiscal year ending June, 1905.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles	Domestic Mdse	Foreign Mdse	
		Dutiable	Free
Agricultural Implements.....	\$ 13,083	.....	.....
Animals.....	73,916	.....	.....
Art Works.....	25	.....	.....
Books, Maps, etc.....	61,855	2	.....
Bones, Horns, etc.....	490	.....	.....
Brass, and Manufactures of.....	20,165	.....	.....
Breadstuffs.....	1,402,997	791	.....
Bricks.....	9,073	.....	.....
Brooms and Brushes.....	19,477	.....	.....
Candles.....	10,720	.....	.....
Carriages, Cars, etc., and parts of.....	156,546	.....	.....
Cement.....	56,019	.....	.....
Chemicals, Drugs, Dyes, etc.....	220,919	2,402	1,476
Clocks and Watches.....	11,594	.....	.....
Coal and Coke.....	53,403	.....	.....
Cocoa and Chocolate.....	9,541	.....	.....
Coffee, prepared.....	13,431	.....	165
Copper and manufactures of.....	12,282	.....	.....
Cork.....	10,153	.....	.....
Cotton and manufactures of.....	990,616	12,152	.....
Earthen, Stone and Chinaware.....	24,320	4,687	.....
Eggs.....	14,925	.....	.....
Feathers.....	1,320	.....	.....
Fertilizers.....	683,019	.....	.....
Fibers, Textile Grasses, manufactures of.....	113,025	126	.....
Fish.....	253,172	2,001	.....
Fruits and Nuts.....	147,300	609	.....
Glass and Glassware.....	64,831	1,276	.....
Gunpowder and other Explosives.....	86,338	.....	.....
Hair and manufactures of.....	813	.....	.....
Hay.....	143,420	.....	.....
India Rubber, manufactures of.....	66,736	.....	.....
Instruments, etc., for scientific purposes.....	73,303	.....	.....
Iron and Steel and manufactures of.....	54,520	383	.....
Sheets and Plates.....	140,749	.....	.....
Builder's Hardware, etc.....	198,065	.....	.....
Machinery, Machines, parts of.....	402,578	.....	.....
Nails, Spikes, Pipes, etc., and all other.....	453,550	.....	.....
Jewelry and manufactures, Gold and Silver.....	186,468	.....	.....
Lamps, Chandeliers, etc.....	23,412	.....	.....
Lead and manufactures of.....	10,414	.....	.....
Leather and manufactures of.....	343,512	.....	.....
Lime.....	57,889	.....	.....
Malt.....	11,978	.....	.....
Marble, Stone and manufactures of.....	6,053	.....	.....
Matches.....	18,393	.....	.....

Import Values from U. S., Domestic and Foreign Mdse., for
1905.—Continued.

Articles	Domestic Mdse	Foreign Dutiable	Mdse Free
Metals, manufactures of, N. O. S.....	\$	\$ 491	\$
Musical Instruments.....	52,897	.....	.....
Naval Stores.....	10,185	.....	.....
Nursery Stock.....	1,991	.....	.....
Oil Cloths.....	6,584	.....	.....
Oils; Animal, Mineral, Crude.....	1,067,236	.....	.....
Refined, etc.....	272,374	.....	.....
Vegetable.....	32,455	1,713	3,493
Paints, Pigments and Colors.....	82,233	.....	.....
Paper and manufactures of.....	175,855	.....	.....
Perfumery, etc.....	4,756	.....	.....
Plated Ware.....	52,668	.....	.....
Provisions, etc., Beef Products.....	77,838	.....	.....
Hog and other Meat Products.....	227,325	.....	.....
Dairy Products.....	219,209	318	.....
Rice.....	303,029	.....	.....
Salt.....	7,104	.....	.....
Seeds.....	5,790	.....	.....
Shells.....	1,168	.....	.....
Silk and manufactures of.....	35,691	.....	.....
Soap; Toilet and other.....	90,891	.....	.....
Spices.....	.....	.....	98;
Spirits, etc., Malt Liquors.....	80,371	1,199	.....
Spirits, distilled.....	110,850	15,084	.....
Wines.....	264,884	13,587	.....
Starch.....	7,080	.....	.....
Straw and Palm Leaf, manufactures of.....	21,060	.....	.....
Sugar, Molasses and Confectionery.....	80,319	1,690	.....
Tea.....	.....	.....	13,029
Tin, manufactures of.....	28,027	.....	2,374
Tobacco, manufactures of.....	528,373	9,474	.....
Toys.....	12,867	.....	.....
Trunks, Valises, etc.....	12,714	.....	.....
Varnish.....	5,392	.....	.....
Vegetables.....	164,469	1,364	.....
Vinegar.....	5,241	.....	.....
Wood and manufactures of.....	.....	673	.....
Timber and unmanufactured.....	53,996	.....	.....
Lumber, Shingles, etc.....	300,822	.....	.....
Doors, Sash, Blinds and all other.....	82,031	.....	.....
Furniture, n. e. s.....	90,588	.....	.....
Wool, manufactures of.....	240,723	2,169	.....
Zinc and manufactures of.....	3,040	.....	.....
All other articles.....	97,095	14,017	2,818
Total	11,643,519	86,208	23,453

**Value Domestic Mdse. shipments to the United States from
Hawaii for fiscal years ending June 30, 1904, and 1905.**

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles	1904	1905
Animals	\$ 4,902	\$ 2,186
Art Works, paintings, etc.	13,480	1,447
Beeswax	4,116	2,628
Books and printed matter	32,962	10,364
Brass and manufactures of	3,637	786
Carriages, etc., and parts of	3,575	7,861
Chemicals, drugs, etc.	8,057	7,135
Coffee	169,282	173,630
Copper and manufactures of	4,562	3,348
Cotton " "	10,292	9,510
Earthenware, etc.	807	535
Fibers and textiles	5,827	10,631
Fish	659	949
Fruits and nuts	127,725	193,373
Glass and glassware	6,174	4,409
Hides and skins	74,331	84,092
Honey	14,346	21,977
Instruments for science purposes	8,512	3,834
Iron, steel and manufactures of	18,635	7,980
Machinery and parts of	28,772	8,454
All other manufactures of iron, etc.	22,059	17,298
Jewelry	18,197	67,969
Leather and manufactures of	4,134	9,969
Marble and Stone	680	800
Molasses	712	1,282
Musical instruments and parts	8,555	5,024
Oils	58	867
Paints, varnish, etc.	91	2,006
Paper and manufactures of	2,548	759
Provisions, etc.	5,054	6,981
Rice	1,610	84,414
Silk, manufactures of	5,114	7,748
Spirits, Wines, etc.	555	2,174
Straw and palm leaf, manufactures of	1,510	747
Sugar, brown	24,359,385	33,946,086
Sugar, refined .....	.....	1,166,041
Tobacco, manufactures of	9,198	7,064
Toys	1,325	1,937
Vegetables	3,160	6,573
Wood and manufactures of	43,838	48,673
Wool, raw.	22,406	53,558
Wool, manufactures of	5,117	5,419
All other articles	77,624	69,732
Total shipments domestic merchandise ...	\$ 25,133,533	\$ 36,069,109
Total shipments foreign merchandise	23,722	42,946
Carried in Am. steam vessels	\$ 9,929,178	\$ 15,400,152
Carried in Am. sailing vessels	15,228,077	20,711,903

Hawaii's Commerce with Foreign Countries.

Total Import and Export Values for 1904 and 1905.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Countries.	Imports		Exports	
	1904	1905	1904	1905
Austria-Hungary .	\$ 177	\$ 162	\$	\$
Belgium . . .	804	18	.....	.....
British Columbia .	34,668	10,542	2,019	11,458
Canada	7,029	5,630	1,075	.....
Denmark . . . . .	.....	378	.....	.....
Great Britain	622,465	305,879	314	785
Germany	347,859	544,584	558	1,824
France	8,778	14,967	18	.....
Italy	397	5,408	.....	.....
Netherlands	1,875	2,768	.....	.....
Portugal	843	18	.....	.....
Spain	2,127	3,545	.....	.....
Sweden & Norway .	114	130	.....	.....
Chile	506,955	448,278	.....	.....
China	4,149	6,022	610	1,071
East Indies	415,945	347,782	.....	.....
Hong Kong	189,101	174,129	8,310	7,559
Japan	1,205,055	962,651	4,794	20,857
Australasia	417,859	154,687	16,851	4,883
Oceania	25,340	24,893	1,652	6,815
Philippines	6,990	2,500	2,815	6
United States	11,683,893	11,753,180	25,133,533	36,069,109
All other	116	53	.....	.....
Total	\$ 15,481,034	\$ 14,763,144	\$ 25,172,549	\$ 36,123,867
Foreign merchandise to foreign ports . . . . .	.....	.....	8,604	4,783
Foreign merchandise to U. S. ports . . . . .	.....	.....	23,722	42,946
Grand total of exports . . . . .	.....	.....	\$ 25,204,875	\$ 36,171,596

Quantity and Value Domestic Produce Exported for the fiscal year ending June 30, 1905.

Articles	To United States		To Foreign Countries	
	Quantity	Value	Quantity	Value
Sugar, raw	811,603,229 lbs.	\$ 33,946,036	100 lbs.	\$ 4
Sugar, refined	21,118,058 "	1,166,091	250 "	17
Coffee, raw	1,437,053 "	173,617	106,309 "	12,966
Rice	2,771,083 "	84,414	3,100 "	104
Fruits and Nuts . . . .	.....	193,373	.....	1,453
Honey . . . . .	.....	21,977	.....	287
Hides	899,963 "	84,092	.....	.....
Wool, raw	423,114 "	53,558	.....	.....
Other . . . . .	.....	348,881	.....	39,927
Total . . . . .	.....	\$ 36,072,039	.....	\$ 54,758

Total Value of all articles Imported and Exported to Foreign Countries, for the fiscal year ending June 30, 1905.

Courtesy of E. R. Stackable, Collector, Honolulu.

Countries	Imports	Exports
Great Britain	\$ 305,879	\$ 810
British Colonies	544,679	22,661
Germany	544,534	1,324
Hongkong	174,129	9,016
Japan	962,651	21,909
Chile	448,278	.....
France	14,967	.....
Other Countries	19,847	3,821
	\$ 3,014,964	\$ 59,541
†Shipments received from United States		\$ 11,703,519
*Imports from Foreign Countries		3,014,964
Total		\$ 14,718,483
*Shipments to non-contiguous territory		\$ 36,114,965
*Exports to Foreign Countries		59,541
†Specie \$103,000, included in above. *Specie not included.		\$ 36,174,526

Total Value of Domestic Exported for the fiscal year ending June 30, 1905.

Articles	Quantity	Value
Sugar, raw	811,603,329 lbs	\$ 33,946,040
Sugar, refined	21,118,308 "	1,166,108
Coffee, raw	1,543,362 "	186,583
Rice	2,774,183 "	84,518
Fruits and Nuts .....	.....	194,826
Honey .....	.....	22,264
Hides	899,963 "	84,092
Wool, raw	423,114 "	53,558
Other .....	.....	888,808
		\$ 36,126,797

Customs Receipts for fiscal year ending June 30th, 1905.

Duties on imports	\$ 976,946.91
Tonnage dues	21,203.16
Official fees	7.00
Fines, penalties and forfeitures	3,764.28
Storage, labor and drayage	4,511.12
Navigation fees	1,202.75
Overtime of officers	476.00
Immigration fund	22,540.00
Other collections	12,689.16
Total	\$ 1,043,340.38

Value of the Carrying Trade to and from the District of Hawaii for the fiscal year ending June 30, 1905.

Nationality	Imports	Exports
American.....	\$ 1,550,898	\$ 33,437
British	655,601	21,247
French	18,222	.....
German	605,228	.....
Italian	7,835	.....
Norwegian	24,848	4,757
Other	152,532	100
	\$ 3,014,964	\$ 59,541
American (Non-Contiguous territory)	11,703,519	36,114,985
Total	\$ 14,718,483	\$ 36,174,526

Exports for the fiscal year ending June 30, 1905.

Domestic Produce to non-contiguous Territory	\$ 36,072,089
“ “ “ Foreign Countries.....	54,758
Foreign “ “ non-contiguous Territory.....	42,946
“ “ “ Foreign Countries.....	4,788
	\$ 36,174,526

Total specie exported to Foreign Countries and shipped to non contiguous Territory.....\$ 214,912

Passengers Departed from the Port of Honolulu to Oriental Ports for the fiscal year ending June 30, 1905.

Ports	Cabin	Steerage	Total
Yokohama.....	92	4,764	4,856
Kobe.....	2	77	79
Nagasaki.....	8	.....	3
Hongkong	58	1,876	1,434
Shanghai.....	12	7	19
	167	6,224	6,391

Asiatic Immigration to Hawaii, June 1, 1901, to June 30, 1905.
From Report of Superintendent of Public Instruction.

	Chinese	Japanese	Koreans	Total
Arrivals.....	1,392	35,289	7,388	44,069
Departures	6,250	31,424	.....	37,674
Excess of Arrivals.	.....	3,865	7,388	6,395
“ “ Departures.	4,858	.....	.....	.....

Total Number of Vessels Entering and Clearing in the District

Ports	Coastwise*				Foreign			
	Entered		Cleared		Entered		Tonnage	
	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Cleared
Honolulu ...	253	502,043	253	537,743	141	384,811	102	341,107
Hilo	33	42,417	30	39,791	3	4,118	...	.....
Kahului ...	19	24,871	24	26,890	6	7,542	1	1,399
Koloa ...	8	6,851	19	16,342	1	743	...	.....
Mahukona..	20	7,451	23	10,007	2	1,269	...	.....
Totals	333	583,633	349	630,773	153	398,483	103	342,506

Summary of above Table :

	Entered		Cleared	
	Number	Tonnage	Number	Tonnage
Coastwise*	333	583,633	349	630,773
Foreign	153	398,483	103	342,506
Totals	486	982,116	452	973,279

Nationality of Vessels Entering and Clearing in the District of Hawaii for the fiscal year ending June 30, 1905.

Nationality	Entered		Cleared	
	Number	Tonnage	Number	Tonnage
American	406	800,485	375	800,287
British	63	148,989	57	135,624
Chilean	2	2,622	3	4,400
French	2	3,151	2	3,151
German	6	8,501	8	11,449
Italian	2	2,943	2	2,943
Japanese	4	13,840	4	13,840
Norwegian	1	1,585	1	1,585
Totals	486	982,116	452	973,279

*The figures under the title "Coastwise" refer to American vessels doing business between the Hawaiian and Mainland ports, but do not include vessels engaged in traffic among the Hawaiian Islands.

Hawaiian Sugar Plantation Statistics.

QUANTITY AND VALUE OF PLANTATION PRODUCTS EXPORTED, FROM 1875.

Year	Sugar		Molasses		Total Export Value
	Pounds	Value	Gallons	Value	
1875	25,080,182	\$1,216,388.82	93,722	\$ 12,183.86	\$ 1,228,572.68
1876	26,072,429	1,272,334.53	130,073	19,510.95	1,291,845.48
1877	25,575,965	1,777,529.57	151,462	22,719.30	1,800,248.87
1878	38,431,458	2,701,731.50	93,136	12,107.68	2,713,839.18
1879	49,020,972	3,109,566.66	87,475	9,622.52	3,119,185.91
1880	63,584,871	4,322,711.48	198,355	29,753.52	4,352,464.73
1881	93,789,483	5,395,399.54	263,587	31,630.44	5,427,020.98
1882	114,177,938	6,320,890.65	221,293	33,193.95	6,354,084.60
1883	114,107,155	7,112,981.12	193,997	34,819.46	7,147,800.58
1884	142,654,923	7,328,896.87	110,530	16,579.50	7,345,476.17
1885	171,350,314	8,356,061.94	57,941	7,050.00	8,363,111.94
1886	216,223,615	9,775,132.12	113,137	14,501.76	9,789,633.88
1887	212,763,647	8,694,964.07	71,222	10,522.76	8,705,486.83
1888	235,888,346	10,818,883.09	47,965	5,900.40	10,824,783.49
1889	242,165,835	13,089,302.10	54,612	6,185.10	13,095,487.20
1890	259,789,462	12,159,585.01	74,926	7,603.29	12,167,188.30
1891	274,983,590	9,550,537.80	55,845	4,721.40	9,555,258.20
1892	263,636,715	7,276,549.24	47,988	5,061.07	7,281,610.34
1893	330,822,879	10,200,958.37	67,282	5,928.96	10,206,887.33
1894	306,684,993	8,473,009.10	72,979	6,050.11	8,479,059.21
1895	294,784,819	7,975,590.41	44,970	3,037.83	7,978,628.24
1896	443,569,282	14,932,172.82	15,885	1,209.72	14,933,382.54
1897	520,158,232	15,390,422.13	33,770	2,892.72	15,393,314.85
1898	444,963,036	16,614,622.53	14,537	919.18	16,615,541.71
1899	545,370,537	21,898,190.97	11,455	358.55	21,898,549.52
1900 ¹	344,531,173	13,919,400.21	120	10.00	13,919,410.21
1901 ²	690,882,132	27,094,155.00	98,820	4,615.00	27,098,770.00
1902	720,553,357	23,920,113.00	48,036	2,187.00	23,922,300.00
1903	774,825,420	25,310,684.00	10	1.00	25,310,685.00
1904	736,491,992	24,359,385.00	11,187	712.00	24,360,097.00
1905	832,721,637	35,112,148.00	26,777	1,282.00	35,113,430.00

¹ Five and one half-months to June 14.² Fiscal year ending June 30.

Seating capacity of principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street	1,500
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
Progress Hall, corner Fort and Beretania streets	500
Hawaiian Opera House, King street.....	1,000
The Orpheum, Fort street.....	945
Y. M. C. Association Hall, Hotel Street	250

Hawaii's Annual Trade Balance, etc., from 1880.

Year	Imports	Exports	Excess Export Values	Custom House Receipts
1880	\$ 3,678,268.41	\$ 4,968,444.87	\$ 1,295,176.46	\$ 402,181.63
1881	4,547,978.64	6,885,436.56	2,337,457.92	523,192.01
1882	4,974,510.01	8,299,019.70	3,324,506.69	505,390.98
1883	5,624,240.09	8,133,343.88	2,509,103.79	577,332.87
1884	4,637,514.22	8,856,610.30	4,219,096.08	551,796.59
1885	3,830,544.58	9,158,818.01	5,328,273.43	502,337.88
1886	4,877,788.73	10,565,885.58	5,688,146.85	580,444.04
1887	4,943,840.72	9,707,047.33	4,763,206.61	595,002.64
1888	4,540,887.46	17,707,598.76	7,166,711.30	546,142.63
1889	5,438,790.63	13,874,341.40	8,435,550.77	550,010.16
1890	6,962,201.13	13,142,829.48	6,180,628.35	695,956.91
1891	7,439,482.65	10,258,788.27	2,819,305.62	732,594.98
1892	4,028,295.31	8,060,087.21	4,031,791.90	494,385.10
1893	4,363,177.58	10,818,158.09	6,454,980.51	545,754.16
1894	5,104,481.43	9,140,794.56	4,036,313.13	522,855.41
1895	5,339,785.04	8,474,138.15	3,134,353.11	547,149.04
1896	6,063,652.41	16,515,230.13	9,451,577.72	656,895.82
1897	7,682,628.09	16,021,775.19	8,339,147.10	708,493.05
1898	10,368,815.09	17,346,744.79	6,977,929.70	896,675.70
1899	16,069,576.96	22,628,741.82	6,559,164.86	1,295,628.95
1900 ¹	10,231,197.58	14,404,496.16	4,173,298.58	597,897.14
1901 ²	24,964,693.43	29,342,697.00	4,378,003.57	1,264,862.78
1902	22,036,583.00	24,793,735.00	2,757,152.00	1,327,518.23
1903	13,982,485.00	26,275,438.00	12,292,953.00	1,193,677.83
1904	15,784,691.00	25,204,875.00	9,420,184.00	1,229,338.15
1905	14,718,483.00	36,174,526.00	21,456,043.00	1,043,340.38

¹ Five and one-half months to June 14th. ² Twelve and one-half months to June 30, 1901. Imports from U. S. ports for 1901 estimated at \$22,000,000, and for 1902 at \$19,000,000.

Summary of Insurance Business, Territory of Hawaii, for the year 1904.

From Report of Insurance Commissioner, October 1, 1905.

CLASS	Amount Written	Amount Premiums	Losses and Claims paid
Fire.....	\$ 21,171,240.97	\$ 368,469.09	\$ 96,215.63
Marine.....	21,104,270.84	203,554.39	203,047.62
Life, new.....	} 1,926,590.66	78,458.03	} 149,652.90
“ renewals		402,749.28	
Accident, etc. ....	.....	11,682.26	3,805.30
Surety	3,152,969.00	7,839.76	811.57
Employer's Liability.....	.....	3,663.56	.....
Plate Glass.....	41,131.60	1,028.29	.....
Total.....	\$ 47,896,202.57	\$ 1,077,444.66	\$ 453,533.02

Table of Receipts, Expenditures, and Public Debt of Hawaii,
for Biennial Periods up to 1894, then Annually.

(Latter years from Auditor's Report.)

Years.	Revenue.	Expenditures.	Cash Balance in Treasury.	Public Debt.
1856.....	\$ 419,288.16	\$ 424,778.25	\$ 28,096.84	\$ 22,000.00
1858.....	537,223.86	599,879.61	349.24	60,679.15
1860.....	571,041.71	312,410.55	13,127.52	128,777.32
1862.....	528,039.92	606,893.33	507.40	188,671.86
1864.....	538,445.34	511,511.10	22,583.29	166,649.09
1866.....	721,104.30	566,241.02	169,059.34	182,974.60
1868.....	825,498.98	786,617.55	163,576.84	120,815.23
1870.....	834,112.65	930,550.29	61,580.20	126,568.68
1872.....	912,130.74	969,784.14	56,752.41	177,971.29
1874.....	1,136,523.95	1,192,511.79	746.57	355,050.76
1876.....	1,008,956.42	919,356.93	89,599.49	459,187.59
1878.....	1,151,713.45	1,110,471.90	130,841.04	444,800.00
1880.....	1,703,736.88	1,495,697.48	338,880.44	388,900.00
1882.....	2,070,259.94	2,282,599.33	126,541.05	299,200.00
1884.....	3,092,085.42	3,216,406.05	2,220.42	898,800.00
1886.....	3,010,654.61	3,003,700.18	9,174.85	1,065,600.00
1888.....	4,812,575.96	4,712,285.20	109,465.60	1,936,500.00
1890.....	3,632,196.85	3,250,510.35	491,152.10	2,599,502.94
1892.....	3,916,880.72	4,095,891.44	312,141.38	3,217,161.13
1894.....	3,587,204.98	3,715,232.83	184,113.53	3,417,459.87
1894.....	1,972,135.43	1,854,053.08	69,225.76	3,574,030.16
1895.....	2,050,729.41	2,284,179.92	302,676.27	3,764,335.03
1896.....	2,383,070.78	2,137,103.38	315,193.16	3,914,608.35
1897.....	2,659,434.16	2,617,822.89	456,804.43	4,390,146.65
1898.....	2,709,489.12	2,299,937.57	740,280.21	4,457,605.85
1899.....	3,854,231.50	3,038,638.38	1,531,784.29	4,890,351.49
1900.....	2,772,871.87	3,727,926.28	624,471.25	4,226,374.61
1901.....	2,140,297.36	2,576,685.53	287,131.30	939,970.31
1902.....	2,473,172.81	2,382,968.90	77,914.36	1,093,970.31
1903.....	2,387,715.88	2,603,194.20	56,613.29	2,185,000.00
1904.....	2,415,356.33	2,844,054.81	68,592.03	3,317,000.00

Hawaii's Bonded Debt, June 30, 1905.

ACT OF JUNE 13, 1896.

Stock A 5 per cent Bonds.....	\$ 762,000	
Stock E 5 per cent Bonds.....	9,000	
Stock O 5 per cent Bonds.....	1,000	
Stock U 5 per cent Bonds.....	50,000	822,000
Fire Claims Bonds issued.....		315,000
Public Improvements 4½ % Bonds, 1903-04.....		1,000,000
Public Improvements 4¼ % Bonds, 1904-05.....		1,000,000
Total Bonds Outstanding		\$3,317,000

INTERNAL TAXES FOR BIENNIAL PERIODS 1880-1894; SINCE, ANNUAL.

Compiled from Official Reports.

Bien'l Periods Ending March	Real Estate	Personal Property	Poll	Horses	Ins'ance	Dogs	Carriages	Seamen	Roads & Carts	School	Totals
1880.....	143,716	115,944	35,484	43,399	.....	15,173	5,780	815	64,940	67,472	532,723
1882.....	187,929	208,096	45,998	42,819	.....	13,965	7,125	642	90,041	87,322	683,987
1884.....	223,100	254,286	52,964	21,975	1,941	13,924	8,750	402	103,054	100,278	780,674
1886.....	227,195	262,307	61,745	*	3,303	13,315	10,635	114	118,256	115,298	812,167
1888.....	252,362	299,974	68,115	.....	6,219	11,985	11,835	.....	120,872	119,565	885,987
1890.....	339,390	329,908	69,116	.....	3,063	14,100	13,940	.....	132,286	131,160	1,032,963
1892.....	358,745	341,205	78,964	.....	4,156	13,660	14,628	Penalty & Costs	152,137	151,906	1,115,401
1894.....	398,894	218,126	78,990	.....	3,867	11,744	11,980	6,476	152,268	152,247	1,068,592
1894 9 mo'th	167,083	151,590	39,050	.....	1,850	4,698	4,427	3,922	74,891	75,082	522,583
1895.....	196,608	164,272	43,663	.....	1,803	5,971	5,425	7,297	84,183	83,470	592,692
1896.....	240,971	210,194	46,655	.....	1,837	6,302	5,889	7,255	90,297	89,443	698,844
1897.....	246,828	242,719	47,973	.....	974	7,313	5,849	10,375	101,858	95,814	759,703
1898.....	268,203	266,821	49,580	.....	2,185	6,248	5,717	8,476	105,814	98,974	811,818
1899.....	383,031	377,730	69,303	.....	2,892	6,019	6,083	10,099	145,130	138,429	1,138,706
1900.....	444,062	490,393	49,922	Income	3,224	4,136	7,387	9,294	107,070	99,838	1,215,326
1901.....	532,637	571,249	46,299	287,867	3,846	4,325	8,470	11,111	100,211	92,592	1,658,107
1902.....	560,456	592,325	51,009	205,097	4,685	4,787	9,522	10,834	110,300	102,016	1,651,023
1903.....	618,891	607,590	48,148	172,542	4,623	4,485	9,962	13,818	104,844	96,296	1,881,199
1904.....	615,127	562,392	49,531	155,786	56	4,542	9,748	13,669	107,564	99,062	1,617,468

*Included in personal property.

Annual Taxes, from 1895, Showing per Capita Rate Collected.

	Taxes collected	Per capita	Taxes collected	Per capita	
1895.....	\$ 592,692.....	*\$ 5.62	1900.....	\$ 1,215,326.....	\$ 7.94
1896.....	698,844.....	6.32	1901.....	1,658,107.....	10.76
1897.....	759,707.....	6.54	1902.....	1,651,023.....	10.72
1898.....	811,818.....	6.45	1903.....	1,681,199.....	10.91
1899.....	1,138,706.....	7.40	1904.....	1,617,468.....	10.50

*Omitting fractions.

Summary of Meteorological Observations, Honolulu, 1904-05.
 Compiled from Territorial and U. S. Weather Bureau Records by A. Mc. C. Ashley
 (Continued from preceding Annals.)

Month	Barometer		Rain- fall	Rel. Humid.		Temperature					Absolute Humid. gr. to cu. ft.	Cloud Amt.	Wind Force
	9 a. m.	3 p. m.		9 a. m.	3 p. m.	Min.	Max.	6 a. m.	2 p. m.	9 p. m.			
July	30.006	29.983	2.09	64.7	71.8	72.6	83.2	74.2	82.1	75.2	6.64	3.9	1.7
August	29.988	29.980	1.12	68.8	76.0	72.3	83.8	73.6	82.3	75.7	7.24	4.7	0.6
	8 a. m.	8 p. m.		8 a. m.	8 p. m.								Average Wind Velocity in miles per hour
September.....	29.951	29.942	1.40	68.2	71.1	73.2	83.7	74.4	82.4	77.1	7.22	4.4	6.5
October	30.002	29.998	1.02	68.2	70.5	72.3	82.2	74.3	80.4	75.8	6.96	4.5	8.1
November	30.028	30.014	4.11	67.2	70.9	68.2	78.5	70.5	77.1	72.6	6.20	5.3	8.9
December	30.007	29.989	3.13	75.7	75.9	68.0	76.8	70.0	75.6	71.3	6.49	5.2	8.3
January	30.032	30.011	0.80	65.9	67.9	61.6	72.8	63.6	71.5	66.3	4.84	4.4	8.1
February	29.998	29.978	0.28	69.2	69.4	63.8	75.1	65.2	73.7	68.3	5.42	3.5	6.6
March	30.077	30.053	0.44	65.2	67.8	64.7	76.2	66.0	74.6	68.8	5.94	3.9	8.5
April	30.112	30.096	2.15	67.9	69.2	66.3	76.7	67.6	75.3	70.0	5.69	4.6	10.0
May	30.073	30.056	1.24	65.5	69.2	67.8	78.6	69.4	77.5	71.8	6.01	4.6	9.0
June	30.033	30.015	0.58	67.3	68.7	69.9	80.5	71.3	79.1	73.8	6.38	4.5	8.6
Year	*30.031	*30.015	*15.15	*68.0	*70.1	68.4	79.0	70.0	77.6	72.2	6.20	4.5	*8.9

Note : Data for July and August, 1904, from Records of Territorial Meteorologist; all other data from U. S. Weather Bureau Records.

*For 10 months.

TABLE OF RAINFALL, PRINCIPAL STATIONS.

From United States Weather Bureau Records.

Stations	Observers	1904					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea.....	C. C. Kennedy..	11.45	14.78	8.49	3.95	5.19	4.50
Hilo (Town)	L. C. Lyman....	16.10	14.71	7.24	3.83	5.78	4.22
Kaunama	J. E. Gamelleison ..	19.16	18.58	11.13	4.74	7.86	4.36
Pepeekeo	W. H. Rogers...	10.11	16.32	8.32	3.79	6.79	4.32
Hakalau	Geo. Ross	13.82	17.13	11.37	4.88	9.16	5.43
Laupahoehoe	E. W. Barnard..	27.61	14.70	6.63	3.62	13.30	5.08
Ookala	W. G. Walker ..	16.75	6.15	5.40	1.45	9.58	2.84
Kukaiau	E. Madden	15.52	5.35	5.62	1.22	8.71	3.14
Paanahu	H. Glass	8.33	2.44	5.08	0.79	6.50	2.61
Honokaa	C. H. Bragg	10.00	2.51	8.08	0.89	8.56	2.88
Waimea	Mrs. E. W. Hay ..	3.82	1.76	4.62	2.43	3.89	4.10
Kohala	Dr. B. D. Bond ..	5.98	3.20	3.96	0.99	6.47	1.56
Holualoa	L. S. Aungst.....	9.98	8.37	10.71	7.88	1.06	1.10
Kealahakua	Rev.S.H.Davis..	8.68	10.60	10.89	9.02	1.34	1.89
Naalehu	C. Wolters	2.53	5.68	7.12	3.47	0.70	1.38
Pahala	H. D. Harrison..	0.66	6.86	3.56	1.15	0.12	1.19
Volcano House..	Geo. Lycurgus..	6.68	8.27	4.06	2.86	2.21	2.05
Pahoa	M. J. Soares	17.06	10.68	10.65	.....	.....	.....
Kapoho	H. J. Lyman.....	8.52	10.89	12.49	5.67	3.78	3.96
MAUI							
Haleakala Rh...	L. von Tempaky	0.55	2.77	1.15	1.87	7.59	6.99
Puunomalei.....	A. McKibbin ...	3.40	4.14	3.01	3.39	9.50	6.19
Paia	J. J. Jones	1.46	2.58	1.15	2.28	5.10	4.15
Kula	Mrs. B. von Tempky	0.99	7.20	6.68	1.17	2.65	0.37
Haiku	D. D. Baldwin..	4.32	4.02	1.63	4.98	6.43	5.89
Kipahulu	A. Gross	5.07	4.30	4.70	3.96	3.73	4.25
Mokulan	Jos. Garnett.....	4.16	4.58	2.19	4.27	3.62	3.86
Wailuku	Bro. Frank	0.04	3.05	1.16	1.18	6.07	6.14
OAHU							
Honolulu.....	U. S. Weather Bureau	.....	.....	1.40	1.02	4.11	3.13
Punahou	R. C. Lydecker ..	2.09	1.12	3.01	2.66	6.36	3.21
Kinaiu Street.....	W. R. Castle.....	1.54	0.84	1.84	0.99	4.94	2.69
Manoa	F. N. Parker.....	9.22	5.92	4.88	8.01	9.21	8.90
Kalihi-uka	Dr. Geo. H. Huddy	8.42	8.83	3.88	8.01	8.54	10.36
Nuuanu-Ave.	W. W. Hall.....	2.65	1.03	1.37	2.25	4.38	3.41
Electric Lt. St. ..	Frank De Mello ..	5.20	5.04	2.99	4.77	5.30	6.34
Luakaha	L. A. Moore	12.06	15.12	6.96	9.33	11.60	13.27
Waimanalo	A. Irvine	1.51	4.78	4.08	1.38	6.37	9.30
Maunawili.....	Jno. Herd	3.47	13.57	8.94	2.45	8.17	14.38
Ahuimanu.....	H.R.Macfarlane ..	5.69	19.51	10.35	3.80	7.08	15.62
Kahuku	R. T. Christoffersen..	1.22	8.89	1.69	1.30	6.13	4.85
Ewa Plantation ..	G. F. Renton	0.55	1.02	0.98	1.97	3.05	1.95
Wahiawa	B. O. Clark	1.70	10.76	.....	3.71	.....	.....
Waiawa	W. R. Waters.....	.....	.....	.....	.....	.....	.....
KAUAI							
Grove Farm	G. N. Wilcox	2.09	6.21	3.49	3.14	2.74	4.32
Kealia.....	G. H. Fairchild ..	1.33	4.28	1.98	2.41	1.87	5.49
Kilauea	L. B. Boreiko.....	3.84	8.17	2.87	5.48	2.62	5.45
Hanalei	E.G.K. Deverill ..	10.01	11.61	4.00	5.80	8.33	7.69
Eleele.....	McBryde Sugar Co.	0.92	1.67	1.05	1.51	1.30	1.88
Lukuiula.....	F. L. Zoller	0.31	4.49	0.87	3.58	2.68	4.16

THROUGHOUT THE HAWAIIAN ISLANDS, 1904-1905.

By A. McC. Ashley. Continued from last Annual.

Locality	Feet Elev.	1905						
		Jan.	Feb.	March	April	May	June	Annual
HAWAII								
Waiakea	50	0.78	5.93	6.04	5.69	7.79	7.76	82.30
Hilo	100	0.99	5.03	6.75	6.06	7.60	7.34	85.65
Kaunama	1050	0.88	6.27	11.71	17.00	13.88	10.14	125.21
Popeekee	100	4.43	5.88	7.18	7.00	8.35	6.76	89.25
Hakalau	200	7.91	8.76	12.41	7.47	13.73	8.63	120.20
Laupahoehoe	500	8.00	5.25	22.50	12.91	10.50	8.00	138.05
Ookala	400	6.50	4.02	15.11	8.59	7.87	6.36	90.62
Kukaianu	250	7.20	3.59	11.67	7.57	5.97	4.32	79.88
Paauhau Mill	300	5.10	2.34	7.52	7.36	5.00	3.10	56.17
Honokaa	470	5.31	3.21	10.98	8.43	6.95	3.72	70.92
Kamuela	2720	0.69	0.84	0.94	5.51	3.41	1.95	33.96
Kohala Mission	521	3.06	2.34	7.70	5.53	6.10	2.72	49.56
Holualoa	1350	1.04	0.16	1.24	3.39	5.04	5.33	55.27
Kealahakua	1580	1.06	0.28	1.72	3.88	6.06	5.15	60.57
Naalehu	650	0.46	0.68	0.75	0.61	1.14	1.26	25.78
Pahala	850	0.81	1.14	1.59	0.93	2.56	0.81	21.38
Kilauea Crater	4000	.....	.....	.....	.....	6.31	6.03	.....
Puna Plantation	600	.....	6.25	6.41	4.45	10.13	8.25	.....
Kapoho	110	0.84	3.72	4.93	2.14	5.40	7.40	68.84
MAUI								
Haleakala Ranch	2000	5.03	2.45	2.11	5.00	1.57	1.44	38.52
Puunamalei	1400	5.38	2.74	5.79	13.06	7.49	5.72	69.81
Paia	180	2.01	0.77	4.48	6.64	2.76	2.71	36.09
Erehwon	4000	3.70	1.37	0.96	3.97	.....	.....	.....
Haiku	700	4.10	1.76	8.99	9.61	7.65	5.71	65.09
Kipahulu	308	2.20	1.78	2.73	5.16	5.08	2.87	45.83
Kaupo	285	1.50	2.20	2.23	4.20	.....	.....	.....
Wailuku	250	3.00	0.84	8.54	2.65	1.14	0.50	29.31
OAHU								
U. S. W'ther Bureau	108	0.80	0.28	0.44	2.15	1.24	0.58	.....
Punahou	44	0.95	0.30	0.96	3.05	2.16	1.22	27.09
Kinai Street	50	0.79	0.02	0.43	1.94	1.57	0.53	18.12
Woodlawn Dairy	285	1.36	1.56	1.92	11.49	9.02	5.13	76.62
Kalihi Valley	485	1.07	1.03	0.68	11.44	10.18	.....	.....
Nuuanu Avenue	50	0.65	0.24	0.53	3.84	2.74	1.47	24.56
Nuuanu Elec. St't'n	405	0.64	1.16	1.56	5.63	8.20	2.96	49.79
Nuuanu Water W'ks	850	2.64	2.35	4.64	14.93	19.07	8.14	120.11
Waimanalo	25	3.84	0.42	3.41	3.41	2.70	1.10	42.30
Maunawili	250	4.58	1.09	3.86	9.24	8.73	3.31	81.79
Ahuimanu	350	2.89	1.59	4.69	6.52	7.41	6.02	91.17
Kahuku	25	2.26	0.30	1.96	2.06	1.27	1.18	33.11
Ewa	50	0.20	0.00	0.56	0.21	0.16	0.22	10.87
Wahiawa	870	2.15	1.14	0.91	2.73	1.76	2.43	.....
Waiawa	675	1.25	0.21	1.07	4.65	2.63	2.42	.....
KAUAI								
Lihue	200	0.52	1.73	0.87	5.61	1.98	6.21	38.91
Kealia	15	1.24	1.05	0.48	1.10	2.09	1.73	25.05
Kilauea	342	2.25	2.34	2.66	2.58	3.74	6.29	48.29
Hanalei	10	3.48	3.12	8.05	6.65	5.20	7.11	81.05
Eleale	150	0.00	0.00	0.66	0.70	0.84	0.36	10.89
Koloa	100	0.52	0.76	0.63	2.30	1.12	1.84	23.26

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mills. (Corrected to Nov. 15, 1905.)

NAME.	LOCATION.	MANAGER.	AGENTS.
Apokaa Sugar Co.*	Ewa, Oahu	G. F. Renton	Castle & Cooke
Ewa Plantation	Ewa, Oahu	G. F. Renton	Castle & Cooke
Gay & Robinson*	Makaweli, Kauai	Gay & Robinson	Waterh'se Tr. Co.
Grove Farm*	Nawiliwili, Kauai	Ed. Broadbent	Hackfeld & Co.
Hakalau Plantation Co	Hilo, Hawaii	J. M. Ross	Irwin & Co.
Halawa Sugar Co.	Kohala, Hawaii	T. S. Kay	Waterh'se Tr. Co.
Hamakua Mill Co.	Hamakua, Hawaii	A. Lidgate	Davies & Co.
Hawi Mill & Plantation	Kohala, Hawaii	J. Hind	Hind, Rolph & Co.
Haw. Agricultural Co.	Kau, Hawaii	W. G. Ogg	Brewer & Co.
Haw. Com. & Sugar Co.	Puunene, Maui	H. P. Baldwin	Alex. & Baldwin
Hawaiian Sugar Co.	Makaweli, Kauai	B. D. Baldwin	Alex. & Baldwin
Hawaii Mill Co.	Hilo, Hawaii	W. H. Campbell	Hackfeld & Co.
Hilo Sugar Co.	Hilo, Hawaii	John A. Scott	Irwin & Co.
Honolulu Plant'n Co.	Halawa, Oahu	Jas. A. Low	Irwin & Co.
Honokaa Sugar Co.	Hamakua, Hawaii	K. S. Gjerdrum	Schaefer & Co.
Honomu Sugar Co.	Hilo, Hawaii	Wm. Pullar	Brewer & Co.
Hutchinson S. Plant. Co	Kau, Hawaii	C. Wolters	Irwin & Co.
Kaeleku Sugar Co.	Hana, Maui	J. Chalmers	Grinbaum & Co.
Kahuku Plantation	Kahuku, Oahu	Andrew Adams	Alex. & Baldwin
Kekaha Sugar Co.	Kekaha, Kauai	H. P. Faye	Hackfeld & Co.
Kilauea Sug. Plant. Co.	Kilauea, Kauai	F. Scott	Irwin & Co.
Kipahulu Sugar Co.	Kipahulu, Maui	H. Haneberg	Hackfeld & Co.
Kihe'i Plantation*	Kihe'i, Maui	Jas. Scott	Alex. & Baldwin
Kohala Plantation	Kohala, Hawaii	Henry Deacon	Castle & Cooke
Koloa Sugar Co.	Koloa, Kauai	P. McLane	Hackfeld & Co.
Kailua Sugar Co.	Kona, Hawaii		C. J. Hutchins
Kukaiau Mill Co. (†)	Hamakua, Hawaii	E. Madden	Davies & Co.
Kukaiau Plant Co.	Hamakua, Hawaii	Albert Horner	Hackfeld & Co.
Laie Plantation	Laie, Oahu	S. E. Wooley	Waterh'se Tr. Co.
Laupahoehoe Sug. Co.	Laupahoehoe, Ha.	C. McLennan	Davies & Co.
Lihue & Hanam'lu Mill	Lihue, Kauai	F. Weber	Hackfeld & Co.
Makee Sugar Co.	Kealia, Kauai	G. H. Fairchild	
Maui Agrl. Co.	Haiku, etc., Maui	H. A. Baldwin	Alex. & Baldwin
McBryde Sugar Co.	Wahiawa, Kauai	W. Stodart	Davies & Co.
Niulii Mill & Plan'n	Kohala, Hawaii	Robert Hall	Davies & Co.
Oahu Sugar Co.	Waipahu, Oahu	E. K. Bull	Hackfeld & Co.
Olaa Sugar Co.	Olaa, Hawaii	Jno. Watt	Bishop & Co.
Olowalu Co.	Olokalu, Maui	Geo. Gibb	Irwin & Co.
Onomea Sugar Co.	Hilo, Hawaii	John T. Moir	Brewer & Co.
Ookala Sugar Co.	Ookala, Hawaii	W. G. Walker	Brewer & Co.
Paaupau Sug. Plant. Co	Hamakua, Hawaii	Jas. Gibb	Irwin & Co.
Pacific Sugar Mill (†)	Hamakua, Hawaii	D. Forbes	Schaefer & Co.
Pepeekeo Sugar Co.	Hilo, Hawaii	Jas. Webster	Brewer & Co.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands—Continued.

NAME.	LOCATION.	MANAGER.	AGENTS.
Pioneer Mill Co., Ltd.	Lahaina, Maui...	L. Barkhausen	Hackfeld & Co.
Puakea Plant'n Co.*	Kohala, Hawaii...	H. R. Bryant	Davies & Co.
Puako Plantation....	S. Kohala, Hawaii...	W. Vredenberg	Hind, Rolph & Co.
Union Mill Co.....	Kohala, Hawaii...	H. H. Renton	Davies & Co.
Waiakea Mill Co....	Hilo, Hawaii....	C. C. Kennedy	Davies & Co.
Waialua Agrl. Co....	Waialua, Oahu...	W. W. Goodale	Castle & Cooke
Waianae Plantation.	Waianae, Oahu...	Fred Meyer...	J. M. Dowsett
Wailuku Sugar Co...	Wailuku, Maui...	C. B. Wells...	Brewer & Co.
Waimanalo Sugar Co	Waimanalo, Oahu	Geo. Chalmers	Irwin & Co.
Waimea Sugar Mill Co	Waimea, Kauai..	Jno. Fassoth..	Castle & Cooke

Championship Races of the Honolulu Rowing Association.

In the Annual contests between the Myrtle and Healani Clubs. One and a half mile straight-away course, Pearl Harbor.

SENIOR CREWS.			JUNIOR CREWS.		
Year	Winner.	Time.	Winner.	Time.	
1896.....	Myrtle	10.03	Myrtle	10.21	
1897.....	Myrtle	9.48	Myrtle	10.29 1/4	
1898.....	Healani	10.05 2/5	Healani	10.14 2/5	
1899.....	Myrtle	11.00	Myrtle	10.43	
1900.....	Healani	10.14	Myrtle	11.14	
1891.....	Healani	10.37 1/2	Healani	11.24	
1902.....	Myrtle	10.30 3/5	Myrtle	10.31	
1903.....	Healani	10.05 2/5	Healani	10.16	
1904.....	Myrtle	10.48 1/2	Myrtle	11.04 2/5	
1905.....	Myrtle	10.34 4/5	Myrtle	10.40	

Challenge Cup Races, Hawaiian Rowing and Yachting Association.

1. Won by yacht Healani, July 4, 1889.
2. Won by yacht Hawaii, July 4, 1890.
3. Won by yacht Healani, July 4, 1891.
4. Won by yacht Bonnie Dundee, July 4, 1892.
5. Won by yacht Gladys, September 13, 1899.

Not competed for since.

Table of Comparative View of Commerce, from 1845, as also Principal Articles of Exports, from 1860, will be found in the Annuals, 1879-1886. Subsequent issues present their continuity at the sacrifice of earliest years owing to page limitations. The Annuals for 1901 and for 1902 gave these two important tables from 1871 to the close of Hawaiian independence.

NOTABLE TRIPS OF PACIFIC OCEAN STEAMERS.

TRIP.	MILES.	STEAMER.	DATE.	D.	H.	M.
San Francisco to Honolulu,	2100	China	Aug. 1899	5	9	55
“ “	2100	America Maru	July 1899	5	9	59
“ “	2100	Korea	Jan. 1903	4	22	15
“ “	2100	Siberia	Aug. 1905	4	19	20*
Honolulu to San Francisco,	2100	Mariposa	May 1898	5	22	0
“ “	2100	China	Nov. 1902	5	2	16*
“ “	2100	Nippon Maru	Jan. 1900	5	2	21
San Francisco to Yokohama,	4764	China	Oct. 1903	9	4	17*
Yokohama to San Francisco,	4537	Korea	Sept. 1905	10	11	0
“ “	4537	Siberia	Oct. 1905	10	10	28*
Yokohama to Honolulu,	3400	China	Dec. 1897	8	6	15*
“ “	3400	Coptic	Feb. 1902	9	2	17
San Francisco to Sydney,	7297	Alameda	Dec. 1895	21	10	0*
Auckland to Sydney,	1286	Mariposa	Jan. 1886	3	11	50
“ “	1286	Sonoma	Jan. 1902	3	8	40*
Auckland to Honolulu,	3810	Mariposa	April 1882	11	10	0*
“ “	3810	Alameda	July 1897	11	10	35
Sydney to Auckland,	1286	Zealandia	Dec. 1890	3	20	51*
Honolulu to Samoa,	2279	Mariposa	Jan. 1886	6	7	45
“ Auckland,	3810	Zealandia	April 1882	11	23	0
“ Victoria,	2342	Warrimoo	July 1896	6	22	19
“ “	2342	Manuka	June 1904	6	14	50*
Victoria to Honolulu,	2360	Warrimoo	Jan. 1896	7	1	9*
Vancouver to Sydney,	6999	Warrimoo	Nov. 1895	20	15	17*
Honolulu to Sydney,	4865	Manuka	July 1904	13	16	55†
Sydney to Honolulu,	—	Miowera	Aug. 1896	14	0	30
“ “	4865	Manuka	July 1905	14	17	12†
Sydney to Vancouver,	6670	Warrimoo	April 1896	21	4	23*

* Best record trips.

† Including all stops.

Clipper Passages to and from the Coast, Etc.

- 1859—Ship Black Hawk, 9 days and 9 hours from San Francisco.
 1861—Ship Fair Wind, 8 days and 17½ hours from San Francisco.
 1862—Ship Storm King, 9 days and 10 hours from San Francisco
 1879—Bktne. Catharine Sudden, 9 days and 17 hours to Cape Flattery.
 1879—Schooner Claus Spreckels, 9½ days from San Francisco to Kahului.
 1880—Schooner Jessie Nickerson, 10 days from Honolulu to Humboldt.
 1881—Brgtne. W. G. Irwin, 8 days and 17 hours from S. F. to Kahului.
 1884—Schooner Emma Claudina, 9 days and 20 hours from Hilo to S. F.
 1884—Schooner Rosario, 10 days from Kahului to San Francisco.
 1884—Brgtne. Consuelo, 10 days from Honolulu to San Francisco.
 1886—Bark Hesper, 9½ days from Honolulu to Cape Flattery.
 1893—Bktne. Irmgard, 9 days 16 hours from San Francisco.
 1893—Bktne. S. G. Wilder, 9 days 14 hours from San Francisco.
 1896—Ship Henry B. Hyde, 102 days from New York.
 1898—Bark Rhoderic Dhu, 9½ days from Hilo to San Francisco.
 1902—Ship Erskine M. Phelps, 97 days from Norfolk, Va.
 1902—Ship John Currier, 35 days from Newcastle, N. S. W.
 1902—Bktne. Lahaina, 12½ days from Eleele, Kauai, to Portland, Ore.
 1903—Bark Annie Johnson, 8 days 16 hours from San Francisco.
 1904—Ship Dirigo, 36 days from Shanghai to Honolulu.

TABLE OF ANNUAL LICENSE FEES.

TERRITORY OF HAWAII.

FEE AND STAMP		FEE AND STAMP	
Alcohol	\$ 51 00	Livery Stable—	
Awa—upset price at auction:		District of Honolulu....	51 00
District of Honolulu.....	1020 00	“ Wailuku or Hilo	26 00
“ Hilo or Wailuku	510 00	Liquors, etc.—1st class....	6 50
“ Lahaina	255 00	2nd class ..	5 50
Each other District.....	102 00	3rd class ...	511 00
(Including stamps.)		4th class....	511 00
Auction—District of Honolulu	613 00	5th class ...	103 00
Each other District.....	16 50	Lodging or Tenement House	2 50
Agent to take Acknowledgements.		Milk	3 00
Each District or Judicial Circuit	5 50	Notary Public—Honolulu..	10 50
Banking	765 00	Each other Judicial Circuit	5 50
Billiard—each table	26 00	Osteopathy	10 50
Bowling Alley—each alley.	26 00	Pawn Broker	51 00
Beef Butcher—“Slaughter and Sell,” Honolulu....	103 00	Physician	10 50
Each other District....	21 50	Peddling Cake	26 00
Beef Butcher—“Sell,” each District	10 50	Poisonous Drugs	51 00
Boat—With 4 or more oars.	8 50	Pork Butcher — “Slaughter” and Sell,” Honolulu	41 00
With less than 4 oars....	4 50	Each other District.....	20 50
Boatman	1 50	Pork Butcher—“Sell”.....	10 50
Dray, Cart, Wagon, etc....	3 00	Public Show—For each performance	5 50
Driver	1 50	Salmon	10 50
Emigrant Agent.....	510 00	Second Hand Dealers.....	26 00
Foreign Corporation.....	306 00	Social Club Tax (where liquor is an essential feature)	200 00
Insurance Agent	2 50	Steam Laundry	51 00
Certif. of Authority....	10 50	Stock and Share Business..	102 00
Hack and Passenger Vehicle—\$1.00 for each person for which the vehicle has a carrying capacity, and stamp.		Tobacco	10 50
Horseshoer and Farrier....	5 50	Veterinary, Medicine, Surgery and Dentistry.....	10 50

The table of Plantation Labor Statistics, comparative for the years 1894 to 1902 inclusive, as given in the *Annual* for several years past, is discontinued for the reason that no “official” returns of this character have been available since 1902 to enable us to keep pace, annually, with the changes constantly occurring.

HAWAIIAN SUGAR CROPS, 1900-1905.

From Table Prepared for Hawaiian Planters' Association, by
W. O. Smith, Secretary.

[Earlier years from 1891 can be found in the Annual for 1901.]

ISLANDS.	1900	1901	1902	1903	1904	1905
Production of Hawaii.....	115,224	134,618	121,295	170,665	122,865	126,405
“ “ Maui	57,347	58,349	56,726	84,776	77,985	100,434
“ “ Oahu	53,625	99,534	107,870	121,068	102,019	123,095
“ “ Kauai	63,348	67,537	69,720	61,484	64,606	76,314
Grand Total.....	289,544	360,038	355,611	437,991	367,475	426,248
HAWAII PLANTATIONS.						
Waiakea Mill Co.....	9,226	10,800	8,700	9,954	6,151	7,661
Hilo Portuguese Sug. M. Co....	967					
Hawaii Mill Co.....		843	985	1,503	1,728	1,438
Hilo Sugar Co.....	7,841	10,214	9,255	13,108	7,701	9,971
Onomea Sugar Co.....	7,131	8,722	11,880	13,472	10,940	11,049
Pepeekeo Sugar Co.....	6,207	7,173	6,627	6,000	4,907	6,167
Honomu Sugar Co.....	5,328	4,401	6,235	6,384	5,489	5,909
Hakalau Plantation Co.....	11,931	10,932	11,700	11,293	8,396	10,862
Laupahoehoe Sugar Co.....	4,119	5,504	7,909	4,856	4,336	5,866
Ookala Sugar Plntn. Co.....	3,302	4,968	1,157	3,942	2,214	3,712
Kukaiau Plantation Co.....	1,525	2,000	1,118	1,746	1,275	1,415
Kukaiau Mill Co.....	1,530	2,000	1,118	1,746	1,274	1,416
Hamakua Mill Co.....	6,078	7,808	2,105	6,950	4,691	5,925
Paauhau Sugar Plntn. Co.....	7,629	9,635	1,322	9,136	7,533	8,006
Honokaa Sugar Co.....	8,117	9,903	3,089	8,587	7,402	6,895
Pacific Sugar Mill.....	4,774	4,948	2,517	6,059	3,388	4,342
Niulii Mill and Plantation.....	1,805	1,516	1,146	1,903	1,189	1,645
Halawa Plantation.....	1,571	1,357	575	1,860	1,016	925
Kohala Sugar Co.....	3,345	3,160	1,096	5,409	2,663	3,350
Union Mill Co.....	2,265	2,003	463	3,380	1,776	2,166
Hawi Mill.....	2,277	2,727	1,373	5,563	3,631	3,687
Beecroft Plantation.....	632	325				
Kona Sugar Co.....	285	1,500	1,391	1,850	897	
Hutchinson Sugar Plnt. Co....	8,338	9,928	8,021	7,527	5,741	7,107
Hawaiian Agricul. Co.....	9,001	10,956	11,998	18,888	10,954	12,620
Puakea Plantation.....		145	307	366	201	262
Olaa Sugar Co.....		1,150	16,748	15,030	13,788	11,361
Puna Sugar Co.....			2,460	3,603	3,146	3,147
Puako Plantation.....				550	438	500
	115,224	134,618	121,295	170,655	122,865	126,405

HAWAIIAN SUGAR CROPS, 1900-1905—Continued.

MAUI PLANTATIONS.	1900	1901	1902	1903	1904	1905
Kipahulu Sugar Co.....	1,890	1,992	1,427	1,622	1,415	1,824
Hamao Plantation Co.....	2,114	1,450	1,748	.....	.....	.....
Hana Plantation Co.....	3,406	2,774	2,700	4,922	2,662	2,720†
Haiku Sugar Co.....	5,512	5,488	4,234	6,397	*	.....
Paia Plantation.....	6,795	7,216	4,146	7,856	13,521	17,820
Hawaiian Coml & Sug Co	17,858	22,345	19,477	33,230	29,829	39,411
Wailuku Sugar Co.....	7,976	7,902	5,934	7,490	6,451	7,516
Olowalu Co.....	1,480	1,240	1,055	843	1,125	1,652
Pioneer Mill Co., Ltd.....	10,316	6,568	9,960	16,530	17,036	25,581
Kihei Plantation Co., Ltd	.....	1,374	5,562	5,629	5,461	4,410
Maui Sugar Co.....	.....	.....	483	257	485	.....
	57,347	58,349	56,726	84,776	77,985	100,434
OAHU PLANTATIONS.						
Waimanalo Sugar Co.....	2,932	3,045	2,985	3,218	2,963	3,428
Heeia Agricul. Co., Ltd..	2,309	1,507	631	.....	.....	.....
Laie Plantation.....	179	1,693	430	724	597	857
Kahuku Plantation Co...	5,647	7,072	5,623	8,212	6,360	7,431
Waiialua Agricultural Co	1,516	17,699	17,001	19,800	18,682	19,722
Waiānāe Co.....	4,019	4,020	5,000	5,348	5,500	5,128
Ewa Plantation Co.....	21,573	33,036	38,775	33,162	29,797	32,380
Apokaa Sugar Co.....	.....	.....	901	610	874	454
Oahu Sugar Co.....	15,450	21,454	26,724	29,256	20,870	33,589
Honolulu Plantation Co..	.....	10,008	9,800	20,736	16,376	20,106
	53,625	99,534	107,870	121,066	102,019	123,095
KAUAI PLANTATIONS.						
Kilāneā Sugar Plntn Co	5,254	5,364	3,672	3,012	1,850	2,290
Makee Sugar Co.....	8,575	9,954	11,232	8,215	7,840	8,335
Lihue Plantation Co.....	15,289	18,356	13,674	11,375	14,611	14,185
Grove Farm Plantation..	1,962	2,183	2,915	1,896	1,679	1,679
Koloa Sugar Co.....	5,004	5,492	5,001	4,825	6,172	6,172
McBryde Sugar Co.....	1,790	2,208	9,113	11,922	10,535	13,136
Hawaiian Sugar Co.....	13,480	13,419	11,480	10,324	11,493	19,062
Gay & Robinson.....	2,001	1,554	2,265	1,645	1,665	2,151
Waimea Sugar Mill Co...	976	919	565	540	627	1,305
Kekaha Sugar Co.....	8,287	7,412	8,978	7,064	7,447	7,318
Estate of V. Knudsen.....	730	676	735	666	687	680
Total	63,348	67,537	69,720	61,484	64,606	76,314

*The Haiku Sugar Co. and Paia Plantation now comprise the Maui Agricultural Co.

†The Hana Plantation changes in name to the Kaeleku Plantation Co.

ESTIMATING HONOLULU'S POPULATION.

INQUIRY is occasionally made for the present estimated population of Honolulu, but the answer is not an easy one to give for the very important reason that there is no official record kept at the Custom House under Federal rule, as existed prior to annexation, when all passenger lists of incoming and outgoing vessels were filed. Such exactness is the feature of the Immigration department of the Custom's service in arrivals of laborers, but it has no application whatever to those departing, nor to the general passenger coming in or passing out of the country. This might be procured by personal application to each of the several steamship and packet agencies from time to time, but without this tally on the passenger movements of the islands there remains no method but that of guess-work whereby an estimate may be given, hence the wide range of figures that have been used, viz: 40,000, 42,000 and 45,000, as Honolulu's population for 1905.

In former years like difficulty was encountered in estimating our population, but the broken link in the chain at that time was the lack of registration of births. A registration of deaths has long existed, but it is only within the past few years that the provisions of the law has been so well observed that the Board of Health can now publish in its annual reports the births, marriages and deaths throughout the islands. On page 21 of this issue it is shown that the births have averaged 2,394 per year for the past four years, and the deaths in the same time have averaged 2,584; an excess of 190 deaths per year. This annual deficit, coupled with the fact that the passenger movements have been against us for some time past—removing from us the unsettled population that rushed in with the annexation boom—leads us to the more moderate estimate of 40,000 as given above; the last census figures in 1900 being 39,306.

LESSONS FROM OUR CUSTOMS TABLES.

MUCH interest has been given by the local press to the evidence of our progress as shown by the tables for Hawaii in the Annual "Summary of Commerce and Finance of the United States" for the fiscal year ending June 30, 1905, and some interesting deductions have been drawn from the comparative figures in the whole list of our domestic exports for the past two years, which show encouraging development, as also the further favorable feature in the reduction of value in our imports of like lines for 1905, compared with those for 1904.

This past year has certainly been Hawaii's banner year in value of her exports, which amounted to \$36,174,526, having leaped \$6,831,829 over the previous record year of exports, which was in 1902, and gained \$10,969,651 over those of 1904. Of course our principal product, sugar, is the main cause of this phenomenal increase, having marketed the bulk of the largest crop in our history (832,721,387 pounds), at the highest ruling rates of the season. But apart from that there is much encouragement to be found in the rest of the category, not only from the increase in value but extension in the list of island products, showing the gradual progress of the diversified industry theory.

The total value of all imports for 1905 was \$14,406,382, leaving the balance in our trade favor of the handsome sum of \$21,406,382.

The customs tables of this issue, on pages 22 to 27, may therefore claim attention for the details they will show in comparing one year with another, and are not to be passed by as "dry statistics."

Of the increase in our sugar shipments for the year 1905, it is to be noted that the refined product to the value of \$1,166,091 figures for the first time in the history of our industries; the season's product of the Honolulu Plantation Co.,

whose directors are to be congratulated on their successful change to the refining process. Molasses, another plantation product, which at one time figured well among our exports to quite an amount, but dwindled to the insignificant sum of one dollar in the year 1903, rises this past year to the value of \$1,282.

Fruits, both green and preserved, have taken wide strides, the gain in the former being \$29,315, a fraction over 32% over like exports for 1904, while the preserved product, mainly canned pineapples, shows a gain of \$36,212, or nearly double in the same time. This is the effect of the newly established canneries of Haiku, Maui, and Kona, Hawaii. Hilo contemplates extending her industries in this direction in the near future, and the canneries on this island, Oahu, are reported to be planning extension.

Coffee shows an increase again both in quantity and value of exports though not up to what it has been. 1901 was its banner year, and with a little Federal aid by way of encouragement the industry would be assured and receive vigorous prosecution. A point suggests itself at this stage that ought to have consideration. Concerted action should be taken by interested parties so as to terminate the importations of "prepared" coffee that has been going on for some time past. There is no excuse save a most mercenary one to warrant our expending \$15,118 for a "prepared" article in 1904, and nearly the same amount last year, to compete against our own product of far superior quality.

The rice industry reached a critical period this past year not fully indicated by the figures of import and export obtained from the "Annual Summary" first above referred to, no detail of our duty paying imports from foreign countries being given. The improvement in our figures of export from \$1,610 in 1904, to \$84,414 in 1905, is therefore more apparent than real, since the importations of the commodity have been so heavy the past two or three years as to seriously affect the industry in these islands, as may be seen by the following:

Our importations of rice and rice products from Japan for

the calendar year 1904 was 17,740,081 pounds, valued at \$409,329. From the United States for the fiscal year ending June 30, 1904, we received 3,642,925 pounds, valued at \$143,142. For the fiscal year of 1905 the imports have been 19,775,990 pounds, about equally divided between foreign duty paying and that from the United States, showing a total value of \$527,183. Under these conditions the increase in our export of island rice was but an attempt to relieve a demoralized overstocked market; figures at one period failing to meet the cost of production.

Timber, under which head our unexcelled furniture wood, koa, is listed, is evidently obtaining recognition and demand abroad since its export value is shown to have advanced from \$3,351 in 1904, to \$10,094 in 1905. It is gratifying to learn that the special effort being put forth to bring this fine cabinet wood to the notice of the Federal authorities at Washington, and dealers and manufacturers throughout the States, is meeting with such encouragement as to warrant plans for the extensive marketing of koa timber from the forest belts of Hilo and Kau. It is not unlikely that Kona's production will also be largely increased. This subject has had the special attention of Forester Hosmer and the co-operation of the Bishop Estate Trustees for improvement of forest conditions in certain of their extensive tracts, while permitting the selection of mature trees for the lumberman's axe.

Wool more than doubled in export value last year, having leaped from \$22,406 in 1904 to \$53,558 in 1905, the value of 423,114 pounds. This is getting back to the position this industry occupied some thirty years ago, 1875 being its banner year with 565,469 pounds as the amount of its export. Within the decade following there were three times when it reached over the half million mark.

Hides still indicate improvement in export value, notwithstanding the newly established local tannery branch of the Metropolitan Meat Co. to utilize their products of hides, skins, etc. with such success that in addition to meeting local needs,

the exports of leather have advanced from \$1,920 in 1904 to \$5,422 in 1905, and the value of imported unmanufactured leather in the same time fell off materially. Tallow also shows an increase in export value during the period under review of \$1,795, and shuts out imports of the product altogether.

The infant fiber industry, sisal, shows to have nearly doubled in export values, reaching last year the sum of \$10,631; and yet further benefit is to be noted from the number of young plants that have been furnished toward establishing new sisal fields in other parts of the islands. Further particulars showing the development of this industry is given elsewhere in this issue.

Beeswax fell off heavily in export value for 1905, but the main apiary product, honey, jumped from \$14,346 in 1904 to \$21,977 the following year. When one looks back to the time and difficulties attending the introduction of the first hive of bees into these islands, 1857, we should be encouraged in all our "small farming" projects toward diversifying our industries. It furthermore illustrates the advantage of system in its conduction, as little attention toward it as a business undertaking took place until about 1895; the product appearing for the first time in the list of domestic exports two years later.

The following summarizing of this subject, from the *Advertiser* of September 18, 1905, with amended total figures, is embodied herewith for the "food for thought" contained therein:

"The total shipments of domestic merchandise from the United States to Hawaii increased last year by \$41,439, their amount for the year ending June 30, 1905, being \$11,643,519.

"Computing the increases in exports to, and decreases in imports from, the United States mainland, the following balances of trade in the articles named are found in Hawaii's favor: Animals, \$22,416; breadstuffs, \$109,554; coffee, \$6,132; eggs, \$6,841; fruits and nuts, \$91,840; unmanufactured leather, \$4,006; timber, \$68,887; vegetables, \$41,410; wool, \$31,152. These balances make a total of \$382,238 net gain in our interstate commerce in the articles before-mentioned.. Against this sum are balances against Hawaii of \$11,836 in fish and

\$9,412 in straw and palm leaf manufactures, a total of \$21,248, which, deducted from the net gain of \$382,238 in the other articles, gives the handsome sum of \$360,990 as the net balance on Hawaii's side in its commerce with the mainland relative to all the articles in this paragraph designated. And there is scarcely an item in the list which this Territory has not the resources to improve upon in ensuing years. The necessity ought to diminish constantly for the importation of breadstuffs and animal feed, of fruits and vegetables, of unmanufactured timber and leather. Eggs ought entirely to be domestically supplied. Also vegetables. Hawaii should not have to import any coffee, but steadily increase its exports thereof. Our adverse fish bill is too high for a country in the midst of the Pacific Ocean. Of fruits and nuts, while we shall always, probably, have a tooth for varieties from northern climes, our exports of raw and preserved fruits may be expected to continue the gratifying ratio of increase which the past year's record shows. Our wool exports ought to grow from year to year. With the advance in industrial education, there ought to be a smaller outgo of money for straw and palm leaf manufactures.

"Coming to articles omitted from the foregoing list, as having but infinitesimal export figures, it is to be noted with satisfaction that our bill for provisions, comprising meat and dairy products, has decreased the past year by \$22,790. At the same time our outlay of \$106,133 for butter, an increase of \$6,737, seems too high. Hawaii imported \$528,373 worth of tobacco last year, an increase of \$5,428. From the favorable expert reports upon the present experiments in tobacco culture, it ought not to be many years until Hawaii has a thriving export trade in this article, together with diminishing imports thereof. Our young fiber industry appears to be growing healthily, while the cultivation of rubber has been started with every promise of success.

"Altogether, Hawaii has good reason to bank heavily upon the future of its diversified industries. In spite of caviling

and cold-water throwing and handicaps not a few, the resources of the Territory other than sugar are steadily being developed. The trade statistics above presented cannot be gainsaid for the encouraging story of progress they tell."

GOATS IN HAWAII.

Prepared for the Annual by Dr. A. Marques.

CLOSE students of facts have often noticed that certain ideas spontaneously appear and occupy the human mind about the same time in different countries, running out as it were in eddies, or, as it has been termed, in thought waves. And this has recently been verified in respect to a rather despised animal,—the goat,—which has suddenly become a subject of interest and study in various parts of the world.

In the United States, the goat seems to have lately taken possession of public attention to such an extent, in regard to the possibilities of creating there a "goat industry," that, under the pressure of requests for information, the Department of Agriculture had to make it the subject of a particular enquiry, which has just brought forth a special bulletin, by Mr. George Fayette Thompson, editor of the sub-bureau of Animal Industry. Mr. Thompson's very thorough study has naturally been a source of fun to newspapers, as a casual quotation will show: "Mr. Thompson believes in doing things thoroughly. He did not send out and have a goat brought in to him, as he might well have done. He went to the goat, studied the goat at home, counted goats, measured goats and photographed goats; and finally he lived for a week on goat's milk, roast goat, boiled goat and goat a la Newberg. He also discovered that there are about two million goats in the U. S., mostly common goats, though it must be understood that the word "common" is not meant to be contemptuous, but merely

refers to all sorts of mongrel goats who cannot recognize their parents, in opposition to the aristocratic goat, like the pure Angora, of whom Mr. Thompson has recorded a genealogical tree about as high as a California redwood. Most of the American goats are sold and eaten as lamb, or used as mutton in the packing houses, and Mr. Thompson's experience is that a good kid is far preferable to bad mutton, in spite of the prejudice that dainty people have against the name. That prejudice however could easily be overcome and the consumption of goats materially increased, and Mr. Thompson also thinks that when people learn that, in spite of the number of goats already living under Uncle Sam, the United States import over \$25,000,000 worth of goat skins annually, while the raising of goats is extremely easy, theoretical speculators may decide to sit up and go into the question practically. Mr. Thompson finally refers to the advantage of the goat as a land cleaner, and after exhaustive study, he is able to say that a couple of active, able-bodied goats in good health and with normal appetites, can clear a tract of land of brush-wood, briars, stubble, grass, tin cans, waste paper and other foreign substances more quickly and economically than the same number of men working double the time, so that it is certainly foolish to clear a tract of land at a cost of from \$5 to \$40 an acre, when a herd of goats will do it for nothing and be glad of the chance. The official bulletin also gives a list of the animal's virtues that make it appear as one of the most ill-used and misjudged creatures extant, and certainly it is a long, long time since the goat has been treated with such respect and consideration as is shown to it in the department's circular." * * *

Now, at the very time when the U. S. Agriculture Department was making this national enquiry into goats, a very similar subject was occupying official minds in Europe. Of course, in the "old country," goats are a very common article, much more so than in America; they not only hold their own, but are recognized as very useful domesticated animals, of which everything is utilized, milk, meat, hair, skin and horns;

and it is a daily sight, in towns of Southern Europe, to see flocks of goats sedately working their way through the streets under the guidance of a milker, and gravely stopping at the doors of customers, under whose eyes they are milked, so that there can be no mistake as to the perfectly genuine and unadulterated nature of the milk supplied. But there are now prospects of this animal being raised to even a higher standard, because, in presence of the constantly increasing diseases,—principally tuberculosis,—in cows, which are supposed to constitute a very great danger to those who use their milk, the French authorities have decided to see whether it could not be possible, by improving the breed of goats and the quality of their milk, to have them take entirely the place of cows for the purpose of the milk used in human alimentation. For this very laudable purpose, and in view of arriving at a thorough knowledge of the very best varieties of goats existing in the world, from which could be created an ideal milk-giver, the French “Société d’ Acclimatation” have undertaken, under Government patronage, through the assistance of all the French Consuls abroad, and by means of a very elaborate series of questions on lines very similar to the American researches, a study of the goat wherever it is to be found. Now, the enquiries made by the French Consulate in Honolulu, have elicited a few facts, in regard to Hawaiian goats, which may be of interest, though it is evident that our mongrel animals are very far from being the ideally perfect breed desired by the French.

Goats were not indigeneous in the Hawaiian Islands. The first animals were introduced by Captain Cook, who left a male and two females on Niihau, February 1st, 1778, and by Captain Vancouver, who, on March 13th, 1792, left one male and one female on Kauai. It is probable that other isolated animals were subsequently brought over by whalers or traders, and I have been told, without being able to verify the statement, that some were also introduced by the great agricultural benefactor of the group, Don Marin,—Manini,—who imported so many useful things for which others got the credit.

Whatever the fact may be, these animals, of which the natives in the beginning took the greatest care, multiplied so rapidly that they soon took to the savage state, settling into the steep gulches and inaccessible mountains of the central ridges, in each of the seven Islands of the Archipelago, wherever the tropical vegetation afforded them a ready subsistence. Soon after their increase, they began to encroach on the cultivable lands, while to their depredations was also attributed in part the destruction of forests, including especially the young sandalwood so rare nowadays. So, it was found necessary to kill them and the natives were not slow to realize the advantage of saving their skins, in view of adding them to the commerce already started in hides and sheep skins. And since then, goat skins have constituted one of the regular articles of exportation to the United States.

Already in 1850,—that is to say 78 years only after the first introduction of the animals,—goat skins collected and exported in that one year, had reached a total of 26,519, valued at \$3,977. Since then, the exportations and values of Hawaiian goat-skins have varied, from year to year, as can be seen by the Custom Statistics for the last 16 years of Hawaiian Independence:

Years.	Number.	Value.	Years.	Number.	Value.
1885	19,782	\$15,573.93	1893	5,961	\$ 2,134.25
1886	21,173	12,644.35	1894	6,759	2,304.70
1887	16,233	7,357.72	1895	6,466	2,638.20
1888	17,589	8,876.75	1896	12,647	4,447.00
1889	11,715	5,460.60	1897	9,907	2,711.95
1890	8,661	3,181.86	1898	7,517	2,357.91
1891	7,316	3,212.15	1899	15,282	4,849.75
1892	3,449	1,422.35	1900*	3,711	1,721.00

*up to June 14th only, after which the Custom-House ceased to publish the yearly detailed figures.

It is probable that, in the future, as a result of the constantly increasing acreage occupied by plantations and also of the creation here of a local tannery, the exportations of goat-skins will be still further reduced.

In spite of this yearly slaughter, descendants from the first imported animals are now still found on all these Islands, principally of course in the savage state, the number of those in domesticity being comparatively insignificant, though some natives, and more recently some Portuguese families do rear a few for their limited domestic needs, in milk and meat, or to serve as pets. Therefore, it can be safely asserted that goats, in this country, have never been seriously considered from an economical point of view, although they have had some admirers, and at various times, attempts have been made to bring in choicer varieties* of animals, in order to improve the native breed and help to start here a "goat industry." Thus, among others, the regretted Dr. Trousseau, of Ostrich fame, also imported choice goats for ranches in Kau and Kona (Hawaii); Mr. Beckley made a trial of Angoras at Moiliili, and Mr. L. L. McCandless, in 1898, bought some selected Angoras in San Jose (Cal.) in order to improve some domesticated goats owned by him at Kalauoa (Oahu); but his purpose was foiled by the destruction brought about by dogs, who used to get into the pens at night, as many as 50 goats being killed in one night.

The number of wild goats existing on these Islands has never been ascertained and could hardly be estimated correctly, as they live in separate flocks, from a dozen to several hundreds, which overrun lots or localities limited by hills or gulches, or by the fences of private holdings. Some estimates give 10,000 wild goats for Oahu, with about 500 domesticated; but they are probably more plentiful in proportion on Kauai, Maui, and Hawaii, while on Molokai the estimate of 10,000, a few years ago, is now reduced to about 2,000. On all these other Islands, some natives own small flocks of half domesticated animals.

Concerning the varieties of goats which have so far been naturalized here, they seem to belong to three different types, as indicated by the following peculiarities: (a) color: princi-

*The first importation of the cashmere goat, was by Mr. Nebeker of Laie ranch, Koolauloa, in April, 1872.—Ed.

pally black and brown, with all the intermediate shades, due to free crossings, though black predominates on some islands and brown on others; lately, white has become also noticeable, which seems to result from crossings with Angoras; (b) horns: generally straight, or curved backwards above the head, though many also are quite hornless; these horns are enclined to be flat, though in some females they are cylindrical, almost round; but horns convoluted or turned down and twisted back of the ears, as in some Turkish races, are quite unknown here; (c) hair: mostly short, like dog's hair, some a little longer, and a few with woolly or silky hairs growing up to 6 inches in length, principally on the hind quarters, this hinting at a more or less distant mixture with Angoras; these long hairs have been spasmodically used to make excellent ropes and saddle girths, the animals being annually shorn for the purpose; in fact, the object of the importers of Angora stock was principally to obtain this growth of hair,—from 6 to 8 inches,—which is used to make "mohair,"—and also, incidentally, to improve the meat, Angora's flesh being sweeter, though this variety does not give as good milkers as the native goats; (d) ears: mostly short and straight, from 2 to 4 inches in length, others long and dangling, from 4 to 6 inches in length; (e) forehead: generally straight or slightly convex; (f) lips: the Hawaiian wild goats seem to differ on this point, on the various Islands: on Oahu, either the lips come together evenly or the inferior one protrudes; on Maui, it is reverse, the lower lip being generally shorter and the upper protruding.

In size, the matured Hawaiian female goats stand from 22 to 30 inches in height, and from 25 to 42 inches in length, the male being usually a little taller. The male wild animal has a very strong and disagreeable odor, which is much less prominent in the Angora crossings. The male begins service when about 6 months old, and, when a few months older, is able to care for 50 to 60 females. These bear ordinarily twice a year, some oftener, from 1 to 3, rarely 4 kids,—generally 2,

miscarriage being very rare. The kids wean themselves when 3 to 4 months old.

As so few Hawaiian goats have been domesticated, there has never been any attempt at a systematic utilizing of their milk, either for consumption or for making butter or cheese, as done in Europe; moreover the milk of the wild animal, perhaps from the very fact of that savage condition, seems to be scarce in quantity. The domesticated animals are said to give daily from 1 to 3 pints of milk, of fairly good quality, with no noticeable odor, though rather stronger than cow's milk.

The flesh of females is very good and commonly eaten on these Islands by Natives, Chinese and Portuguese, and even brought to market in the towns, when there is a scarcity of mutton; and in taste, it is said to be hardly distinguishable from mutton flesh. That of the males is naturally much less palatable, unless they have been previously castrated. The domesticated animals are slaughtered for meat between 6 months and two years of age.

The herds reared in domesticity are rarely fed systematically, but are left to shift for themselves, and it has been ascertained that they do not thrive in our damp, windy valleys. Otherwise, goats here are very hardy and free from disease, and no epidemics have ever been known among them.

The value of native goats, for meat, ranges from 2 to 3 dollars, for grown up females, and from 50 cents to 1 dollar for kids. The value of the skins is about 50 cents, with a ready market, and the skins of those with Angora blood make beautiful rugs.

The treatment of goats in our Archipelago, seems to have been entirely improvident and thoughtless; in effect, they have been and are still systematically and ruthlessly destroyed for three reasons:

(a) when they grow destructive to the neighboring forests and cultures, their carcasses being then generally left on the ground, rarely utilized or buried;

- (c) when they can serve to the pleasures of sportsmen;
- (d) when their skins are in demand.

Moreover, to this, often wanton destruction, must be added that now caused by wild dogs, so that, from these causes and those already mentioned above, the Hawaiian wild goats seem to be on the decrease. Yet, their breeding, for supplying excellent and cheap meat to our increasing laboring population, as also for exporting the skins, ought still to be considered as *one* of the "possible" small local industries, one involving only a nominal care and expense, if the matter is gone into in a proper business-like manner; and may be, some useful hints in that respect might be gathered from a careful perusal of the above mentioned U. S. Agricultural Bulletin.

THE BOARD OF FIRE UNDERWRITERS Of the Territory of Hawaii.

By A. R. Gurrey, Secretary of the Board.

AFTER careful consideration and several attempts I come to the conclusion that it is impossible to make a history of our Board of Underwriters interesting to anyone but an insurance man, if the subject which is the driest of the dry be adhered to, so in the following pages I have taken the liberty at times of wandering from my text, which is perhaps putting it somewhat mildly—but I could not help it; the surprise is that I have not wandered away from it altogether, for in looking over the files of old newspapers, some of which dated back as far as 1840, I found them most interesting, for even the advertisements tell many a forgotten tale of the past history of the people of these islands. News was naturally very scarce in those old days, and the papers are largely made up of clippings and letters from correspondents, and I note our old friends "Veritas" and "Pro bono Publico" were alive and kicking even then.

Fires always seem to have been fairly numerous, and there was a continued complaint of incendiarism, which is rather to be surprised at as there was no insurance in those days.

The first serious fire of record seems to have been in Koloa, Kauai, in 1840, in which seven buildings were destroyed. One account says that the fire was set by a native although in another paper the origin is attributed to a stove pipe, but as a matter of comparison it may be more interesting to note the account of a serious fire in the sugar mill at Ewa, in August, 1841; the property belonged to Governor Kekuanaoa; the fire destroyed the greater part of the sugar house and several barrels of sugar and molasses. I wonder if this was the season's crop of that time. In July of the same year a Mr. Castle's sugar house at Hilo was maliciously set on fire by someone and two tons of sugar and 12 barrels of molasses were burned, with some lumber and other property. There was no insurance and the loss fell on the owners who evidently survived it. In February, 1845, a loss of 13 houses at Kealakekua, Hawaii, is chronicled as occurring on the 19th of the previous December. News moved slowly in those days.

Fires continued to happen comparatively frequently, but with nothing to mark their individuality. In 1846 two whale-ships with full cargoes were burned in the harbor. Another fire of note occurred July 5th, 1847, in the counting room of Brewer & Co. "in which were a large amount of money"—even in those days. The flames were quickly extinguished without serious loss and the firm continued to prosper.

In April, 1846, an advertisement appears in the *Polynesian* of the appointment of Starkey, Janion & Co. as agents of the Liverpool Underwriters. This is the first appearance of anything in the shape of an insurance agency, although the firm was evidently not authorized to issue policies.

In 1848, Mr. Castle's blacksmith shop at Hilo was burned; in 1853, Horace Crabbe's residence at Palama was totally destroyed by fire, and in the same year Mr. Lyman's school, at Hilo, was burned to the ground. The paper states that the

school had then been in existence 17 years. In October, 1853, Mr. Wm. B. Rice, of Rice & Co., was appointed agent of the Underwriters of Boston, but like Starkey, Janion & Co. with no authority to issue policies. In July of 1855, a serious fire broke out in the Varieties Theatre in this city which, with the Police Station, Cohen's, Afong's and Watts & Co.'s stores were destroyed. Mr. Dimond's stone building seems to have checked the fire. After this subscriptions were opened for a new fire engine which was put in commission in July of the following year.

In the *Polynesian* of September 6th, 1856, an advertisement appears of the Northern Assurance Co., the exhibit being dated June 17th. The agent was Robert Cheshire Janion, afterwards Janion, Green & Co. This evidently was the first fire Insurance Co. in the islands—the first advertisement anyhow, and all such matters seem to have been advertised. The Company I need hardly say is still doing business here. This Company in September, 1857, published the following notice which I copy verbatim:

"The undersigned begs to notify those parties who have insured in this office wooden buildings or their contents, within the precincts of Honolulu, that in consequence of the continued erection of large and high wooden buildings close together in narrow streets, no more risks on timber constructions in the town will be taken and those already taken will not be renewed on the expiration of their terms.

"Robert C. Janion."

But to digress a moment; the following notice appears in the *Polynesian* of May 9th, 1857, which is too good to pass:

"A Mormon, about to leave this Babylon, with all its abominations, in obedience to Rev. XVIII, 4 and 5, for the Great Salt Lake City; and whereas many shameful things have been told of these people after their departure from these islands, I request that any person or persons in anywise having a charge against me, will now make it known, or ever after hold his peace.

"I also take this opportunity of warning the Wicked of "these Islands—with their priests—whether you believe or "not—the Judgment of God is nigh upon you, except ye repent as did the people of Nineveh, ye shall all suffer, for the "Decree has gone forth—see Rev. XIV, 6 and 7.

"....., Carpenter."

I will not give the party's name.

In October, 1857, Messrs. Melchers & Co. were appointed agents for the Hamburg-Bremen Fire Insurance Co. with authority to accept risks in Honolulu and vicinity. This Company, like the Northern, is still represented here.

On Saturday evening, December 27th, 1860, the most serious fire occurred that had visited Honolulu. It started in the bakery in connection with the Steam Flour Mill and Foundry, and the loss to the concern was estimated as being \$25,000. Thos. Hughes, iron founder, and Johnson & Emmes, shipwrights, lost \$10,000. J. J. Caranave's stone warehouse and contents valued at \$8,600 was also destroyed. There were quite a number of smaller losses, making the total of \$55,000. No mention is made of there being any insurance on the property. In 1862, the Lahainaluna Seminary, on Maui, was destroyed by fire. It had been built 30 years before by the American Board of Missions, but had been turned over to the Government just before the fire. It was a serious loss, but the native population took hold of the matter and raised money towards its restitution.

In February, 1865, an advertisement of Castle & Cooke appears stating that they had been appointed by Bigelow & Bro., of San Francisco, agents for marine business of the Phenix and the Security, both of New York. Bigelow died long ago, the brother is still alive, living away up in the mountains of California. The poor fellow has suffered many a hard stroke of fortune and now views "with hollow eye and wrinkled brow an age of poverty." The same advertisement states that Castle & Cooke were also agents of the New Eng-

land Life Insurance Co. with assets \$2,930,000. This is evidently the first life Company to make its appearance in the islands, although the date of appointment is not shown.

Some time previous to this, H. Hackfeld had been appointed agent of the California Insurance Co. for marine business. In September, 1876, is noticed the first advertisement of the Liverpool & London & Globe Insurance Co., then as now in the hands of Bishop & Co. About the same time, Ed. Hoffschlaeger & Co. were appointed agents of the North British & Mercantile Ins. Co.; H. Hackfeld & Co. for the Transatlantic Fire Ins. Co., and Sam'l. G. Wilder for the Mutual Life Ins. Co. of New York.

In 1877, another serious fire happened, starting in the rear of Green, Macfarlane & Co.'s, and burned from Queen street to the then Pacific Mail wharf, opposite the custom house. The origin of the fire seems to have been unknown. The losses and insurance were as follows:—J. A. Hopper loss \$45,000, insurance \$11,000; Allen & Robinson loss \$25,000, insurance \$11,000; Robinson Estate loss \$10,000, no insurance; Hackfeld & Co. loss \$10,000, insurance \$8,000; Pacific Mail S. S. Co. loss \$26,000, no insurance; Davies & Co. loss \$26,000, fully insured; Green, Macfarlane & Co. loss \$9,000, insurance \$500. J. H. Bruns loss \$9,000, no insurance; besides many smaller losses. Total loss, \$258,700, insurance \$63,100. The account says, "His Majesty the King was early on the ground and with the household troops remained throughout the night, working efficiently on the brakes and otherwise." On January 5th of the following year, the store of Afong & Achuck, on Nuuanu street, suffered by fire but the firm had \$30,000 insurance on the stock, and the debris sold by auction for \$3,600.

On April 18th, 1886, the quiet of the Sunday afternoon was broken by an alarm of fire from the corner of Smith and Hotel streets which was the heart of the congested Chinese quarter. What had long been feared had come at last. The fire companies quickly responded to the call and they found a fierce fire awaiting them. Unfortunately the water supply

soon ran short and in spite of the desperate efforts of the fire department led by John Nott as chief, and Monsarrat and Asch, his assistants, Chinatown was soon but a mass of smoking embers. During the fire the department was strongly enforced by the sailors from two English war vessels, the *Satellite* and the *Heroine*, which were then in the harbor. When the flames were sweeping down before a strong wind carrying showers of sparks and clouds of suffocating smoke it was decided to blow up the Sailors' Home, a tall frame building, to save property across Merchant street. Two 100 pound bags of powder were brought up from one of the war ships by the chief gunner who placed them in the building where he thought they would do most good. A fuse was attached and lighted and everyone precipitately retreated; the flames reached the Bethel church adjoining but the fuse seemed to have failed. The crowd waited and waited, the seconds ran into minutes but the explosion came not. Then the authorities concluded that an explosion might be dangerous and resolved to let the building burn. An order was quickly given to the gunner who as quickly went in through the smoke and sparks, and was, for what seemed an interminable time, lost to view. At last he is seen through the smoke carrying a sack of powder which he hands over to another seaman and goes back for the second, which was recovered, and the powder taken back to the ship. By the newspaper account it reads like a brave deed bravely done.

The fire burned over between 50 and 60 acres from Nuuanu and Bethel streets to the river and from Beretania to King:—losses about a million and a quarter; insurance \$228,500, of which the Transatlantic Ins. Co. paid \$62,250, the Hamburg-Magdeburg \$33,000, the Royal \$25,000, the North German \$23,000. Other companies had comparatively light losses. The Minister of the Interior was blamed for the shortage of water and for his indecision at the fire, and the Fire Marshal for allowing such large quantities of oil to be kept in the burned premises. The Bethel was destroyed in the fire. It was a building of historic interest, being the first church

erected in the islands for the worship of God in the English language. The materials for its construction had been sent around the Horn from Norwich and New London.

It was immediately after this fire that our Board of Fire Underwriters was established. A Mr. Thomas who came down from San Francisco to adjust the loss claims for certain insurance companies, started the ball rolling, and after the formation of the Board, and at its request, Mr. Thomas rated what was left of the town. The object of the association was, as stated in its constitution and by-laws, "to promote harmony and correct practices in underwriting, and to establish and maintain just and equitable rates of premiums upon all property insured by its members, and also for the prevention of careless endorsements and authorizations of non-concurrent policies." The by-laws were signed by all members:—Messrs. Bishop & Co., Castle & Cooke, T. H. Davies, C. O. Berger, H. Hackfeld & Co., Wilder & Co., Alex. J. Cartwright, W. G. Irwin & Co., F. W. Macfarlane, G. W. Macfarlane & Co., A. Jaeger, Hoffschlaeger & Co., and F. A. Schaefer & Co. Mr. Schaefer was the first president and has held the office ever since, showing in some degree the estimation in which he is held by the members. G. W. Macfarlane was the first vice-president and Mr. A. Jaeger the first secretary and treasurer; he soon resigned however, when Mr. Berger was elected in his place. Honolulu was again rated in 1893 by Mr. Conway, a prominent San Francisco insurance man and again by the executive committee of the Board on inspection made by the present secretary. A new schedule of rates to apply to brick buildings was adopted. This schedule was based as far as possible on the actual experience of Insurance Companies in the different classes of risk. By it every weak structural point of a building, negligence and all bad features are charged for, and a credit given for every favorable feature, so that as the hazard is decreased less is charged for the insurance. Honolulu and Hilo were re-mapped, and new maps made of Wailuku, Kahului and Lahaina, and surveys of all the sugar mills, many rice mills and a great deal of other

property was surveyed and diagrammed. The present constitution and by-laws are virtually the same as those first adopted, although some slight changes have been made in them. It is probably the oldest Board in existence in the States.

The plague fires of 1900 are too recent for me to touch on, but these fires from which Honolulu has suffered should point a moral. Chinatown has again been largely built up of wood, and is getting more and more congested; a building is added here, a cook house there, a shed in another place (for this is the way Chinatown grows), and the question forces itself upon an observer how far are we from another large fire?

COMMERCE OF HAWAII.

By E. R. Stackable, Collector, Port of Honolulu.

THE first Tariff Act of the Kingdom of Hawaii entitled "An Act for the Regulation of Taxes, Duty and Government Property" was approved May 11th, 1842, and took effect January 1st, 1843.

Section 7 of the Act reads as follows, viz: "It is furthermore enacted that from and after the first day of January, in the year 1843, there shall be an ad valorem duty of three per cent. laid on all goods, wares and merchandise and on every article of trade imported to these Hawaiian Islands from foreign nations. None of the above articles shall be landed on these shores until the duty be paid or bonds for payment be given, and the harbor master has given his consent, and he will not give his consent unless the owner of the property conforms to the above requirement." A note following this section reads as follows, viz: "Respecting times for paying duties see an Act passed May 9th, 1839," but I am unable to find any authority for the assessment of duty on imported merchandise prior to the Act above cited.

According to the records of this office the first entry for im-

ported merchandise was made on January 6, 1843, by Mr. George Pelly and Mr. G. T. Allan (Agents of the Hudson Bay Company). The merchandise was imported in the bark "Vancouver," of which Capt. A. Duncan was master, from the Columbia River, and consisted of:

695 barrels Columbia River Salmon, valued at.	\$4,170.00
160 planks, 4 inches by 12 feet.....	307.20

Total	\$4,477.20
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On which amount an ad valorem duty of 3%, or \$134.32 was collected.

Fifty-three years prior to the establishment of a Custom House in the Kingdom of Hawaii, the first Tariff Act of the United States was passed, entitled "An Act for laying a duty on goods, wares, and merchandise imported into the United States," which was approved July 4th, 1789, and went into effect on August 1st, 1789. Mr. James Madison introduced the subject of the tariff, and the bill above referred to, in the House of Representatives on the 8th day of April, 1789, in part by the following words: "I take the liberty, Mr. Chairman, at this early stage of the business, to introduce to the committee a subject which appears to me to be of greatest magnitude; a subject, sir, that requires our first attention and our united exertions. The deficiency in our Treasury has been too notorious to make it necessary for me to animadvert upon that subject. Let us content ourselves with endeavoring to remedy that evil. To do this a national revenue must be obtained; but the system must be such a one that, while it secures the object of revenue, it shall not be oppressive to our constituents. Happy it is for us that such a system is within our power, for I apprehend that both these objects may be obtained from an impost on articles imported into the United States." Since July 4, 1789, a number of tariff acts have been passed by the Congress of the United States.

The present tariff of the United States, approved July 24th, 1897, (known as the Dingley Bill) took effect in this Territory on June 14th, 1900, and the Federal Custom House was established in the premises formerly used for Customs purposes under

the late Republic of Hawaii. See Section 88, Act of April 30th, 1900).

The Customs collections from June 14th, 1900, to June 30th, 1904, have been as follows:

1900 (June 14th to 30th).....	\$ 45,523.99
1901 " 	1,219,338.79
1902 " 	1,327,798.37
1903 " 	1,193,677.83
1904 " 	1,229,492.15

Total\$5,015,831.13

In 1904 the following Customs Districts in the United States each collected over one million dollars:-

1 New York	\$173,022,566.12
2 Boston	21,978,890.13
3 Philadelphia	18,891,220.67
4 New Orleans	9,117,450.42
5 Chicago	8,141,662.07
6 San Francisco	7,448,861.97
7 Baltimore	3,323,766.09
8 St. Louis	2,376,215.02
9 Tampa	1,331,057.71
10 Hawaii	1,229,467.61
11 Detroit	1,197,056.65

From the above it will be seen that Hawaii was tenth on the list, collecting more than Detroit.

Since 1897, the year before the passage of the joint resolution of annexation, approved July seventh, eighteen hundred and ninety-eight, the exports from this Territory to the United States have practically doubled, increasing from \$13,687,799, in 1897, to \$26,242,869 in 1903, and to \$25,157,255 in 1904.

Turning to the import side, the figures show an even larger growth.

The imports from the United States grew from \$4,690,075 in 1897 to \$22,000,000 in 1901, and \$11,987,050 in 1904.

SHIPMENTS FROM THE UNITED STATES TO HAWAII for five years from July 1, 1900, to June 30, 1904 (specie not included) :

1900	\$13,309,148
1901..... Estimated	22,000,000
1902..... "	19,000,000
1903	10,840,472
1904	11,683,393

ANECDOTE OF KAMEHAMEHA III.

THE following incident connected with Kamehameha III., at Lahaina, is related by Mr. Gorham D. Gilman, now of Boston, Massachusetts.

Standing on the veranda of Nahaolelua's house one day I heard some voices chanting a Hawaiian oli-oli, and perceived, as the party drew near, the king and queen, John Young and his wife, and other couple of the Young family, linked arm in arm, marching up the street in a most jolly way, singing. The rain was warm, the air soft, and the company needed but the scantiest clothing, no shoes or stockings, but with sweet smelling maile wreaths for dress suits they were enjoying the free life of Lahaina which "state" denied them at the Court in Honolulu.

It should be stated that the party had been following a custom of the old conqueror, Kamehameha I., which was to encourage his people to work by working with them. The royal party were returning from opening a kalo patch, where a part of the preparation was treading the bottom as the water was let in. There was no necessity for royal apparel, or silk, or satin, but labor was dignified when the head of the nation participated in it with his people.

The table showing Water Development for cane culture throughout the islands, and expenditure for same, as given in last Annual, on page 164, has not received figures as yet from the non reporting plantations then shown to alter the same. These, with other enterprises now in progress, will be completed or so far advanced by next year, that it is hoped a full and complete table can be then presented.

EXTRACTS FROM AN ANCIENT LOG.

Selections from the log book of Captain Alexr. Adams in connection with the early history of Hawaii.

Occurrences on board the brig *Forester*, of London, from Conception towards the Sandwich Islands.

JANUARY 16, 1816.—Light breezes and clear weather: at 3 p. m. saw the high land of Owyhee bearing per compass W. by S. 17 leagues. Mounted the guns; anchors on the bows; bent on cables, etc. At 6 a. m. nearest part of the island bore W. S. W. 7 or 8 miles. At 8 a. m. several canoes came alongside; bought some provisions which we greatly needed. At mer. anchored in 7 fathoms sandy bottom one mile from the shore.

17th.—Moderate land and sea breezes with much rain: employed in watering and mending sails.

19th.—First part moderate, middle and latter part cloudy. Got under way, and stood out of the bay along the N. E. side of the island.

21st.—Light airs from S. W.; standing in for Toihai bay, the anchorage bearing per compass E. S. E. five miles.

22nd.—Several canoes came alongside, trading for rope: at 1 p. m. came to in 25 fathoms, sandy bottom: Lat. obs. 19 55 N.

23rd.—Moderate and clear: got under way and at 4:30 came to anchor in Kairua in 14 fathoms, Karahaku point S. E. 12 miles. From this till the 29th laying here buying hogs from the king. Tuesday 30th, commences with moderate breezes and clear. At 8:30 p. m. got under way for the island of Maui. At mer. N. E. point of Kaurau bore N. N. W. 9 leagues.

31st.—Light breezes from N. E. and clear weather: var. per amp. 12 E. Standing off and on the island of Ranai, nearest part of Maui N. E. three miles.

February 1st.—Light airs and cloudy weather: at 2 p. m. came to in Lahaina Roads in 15 fathoms sandy bottom; middle part thunder and lightning. At 6 a. m. got under way and stood for the island of Woahoo, Lat. obs. 21° N.

2nd.—Fresh and clear: all sail set to advantage. Squally; standing off and on the island of Oahu; at 10 a. m. came to off the harbour of Honolulu in 7 fathoms hard bottom.

Fresh and clear: at 6 a. m. towed into the harbour and moored ship in 4 fathoms water. Unshipped the rudder and hauled it on shore, found all the pintles entirely eaten by the copper; no workmen here to make new ones. 5th, stripping ship; discharged three men by consent; repairing rigging and sails, salting pork, etc.

March 8th.—Arrived ship *Albatross* of Boston, from California, having lost her commander and three men by being taken by the Spaniards.

28th.—Anchored off the harbor ship *Beverley* of Boston, from Valparaiso to Canton.

April 6th.—Strong gales and squally weather: getting ready for sea taking aboard provisions for Owyhee: carpenter upon the rudder.

The king of these islands having a strong passion to purchase the brig, Captain Ebbetts and myself was accordingly deputed to treat with him, but he would not purchase her unless I would enter his service as her commander. I resultingly acquiesced, (the vessel) having been given up to him at Karakakua and called by him *Kaahumanu* in honor of his queen. I was accordingly honored on taking command with the flag of His Majesty and a salute of 11 guns.

September 5th.—At 9 p. m. got under way for Toihai bay; at noon anchored in 16 fathoms sandy bottom; took on board 7 great guns for the island of Oahu. At 10 p. m. got under way for the island of Maui and anchored at 10:30 a. m. of the 7th in Lahaina roads. Got under way at 5:30 of the 8th in company with ship *Enterprise* for Oahu. Anchored off Honoruru at 6 a. m. in 14 fathoms hard bottom.

10th.—Towed into the harbour and moored; sailed the Rus-

sian ship *Codiack*, for Maui. 11th, arrived the *Enterprise*. From 12th to 24th variously employed; landing guns from the *Enterprise*.

30th.—Ship *Ocean* sailed for China. Landed six guns.

October 3rd.—Sailed ship *Albatross* for Wainai. In boats and unmoored ship and at 10:30 got under way for Maui. Arrived there on 6th, ship *Zephyr* in the roads, 'of and from New Haven. Got under way on 10th for Owyhee, arriving at Kailua at 10 the next day. 13th, employed in landing cargo and receiving from shore one stream anchor. 14th, engaged repairing sails and cleaning small arms, etc.

15th.—At 6 a. m. the king came alongside and ordered us to get under way for Karakakua; weighed and made all sail accordingly. Light airs and calms. At 2 p. m. of the 16th came to anchor in Karakakua in 19 fathoms sandy bottom. Out boats and got on board 12 guns and carriages, 3 swivels, 126 round shot then got under way and returned to Kairua. 18th, received from the king 3 bolts canvas and 10 coils rope; 19th, landed all sails to dry; received some rope from shore, then sailed for Honoruru, via Toihai and Rahaina, arriving on 26th.

October 27th, sailed ship *Enterprise* for Canton. Discharged Benj. Prescott.

November 1st.—Making new tops for the brig. 8th, schmr. *Traveller* arrived from Chili. Mr. Jones discharged by consent. 19th, cut four feet off the main top-mast. Discharged Jas. Row.

27th.—Arrived the Russian brig of discovery *Rurick*.

28th.—Sailed the *Albatross* for Owyhee.

December 4th.—Painting ship and caulking.

15th.—Sailed the *Rurick*; saluted with 7 guns and was answered by a like number.

23rd.—Sailed for Owyhee. On the 29th, came to in Kairua; out boats and cleared decks. 30th, received on board 2,000 bundles grub, 2 hhds. rum, and 2 of bread for different chiefs. 31st, sailed for Karakakua and found there the ship *Zephyr*.

January 9th, 1817.—At 4 a. m., arrived the king. All hands.

on shore on the 12th to observe the Taboo, the vessel to be prayed over at 4 p. m., it being one of their religious ceremonies. The king and royal family paid the brig a visit. 15th, sailed for Kairua, and on 18th, stood again for Woahoo.

19th.—Fine pleasant weather. At 1 p. m. saw a strange sail to the southward standing in for Kairua. On being told she was a Russian brig, and apprehensive of some harm, cleared away for quarters and bore up after her. She proved to be the brig *Almyra* from Attoi, bound to Kairua for hogs.

23rd.—Came to anchor at Honorura in 4 fathoms water. From this to February 3rd, making preparations for a voyage to Canton.

Feb. 11th.—From this to 20th, employed fitting ship for the intended voyage. Arrived schmr. *Columbia*. Making ready for sea. On Sunday, February 23rd, got under way and stood out of the harbour. Saluted the fort with 9 guns and was returned by a like number; bound to Waimea (Oahu) for sandalwood to Canton. Governor Cox and lady accompanies us to see the brig loaded. Anchored at Waimea on 26th in 9 fathoms water. From this to the 2nd March variously employed. At 11 a. m. got under way for Wainai where we anchored the following day. Sent the boat in for water and otherwise employed getting ready for sea.

7th.—All the cargo on board, hoisted in the long boat. 8th and 9th, fresh gales and cloudy; at 4 p. m. got under way for Attoi. Arrived off the island and delivered our orders to the king from Tamehameha.

10th.—Standing off and on waiting the return of Mr. Sumner. At 4 p. m., he came on board and shortly after we came to in 12 fathoms.

11th.—Getting off hogs and taro on board, etc. Some Russian gentlemen dined with us.

12th.—N. E. winds. Got off all our stock. Gave the king our ensign to hoist in lieu of the Russian, who said it was on account of his having no other. At 2 p. m. got under way and stood off and on all night. At 7 a. m. (13th), the boat returned; unbent cables and stowed the anchors. Moderate

breezes and passing clouds. At 3:30 Tahaura bore N. 25 W. 8, from whence I take my departure, it being in Lat. 21 38 N. Long. 199.27 E.

15th.—Squally weather with rain. 16th, struck 8 of the guns down the hold. 18th, pleasant weather. Several flying fish flew on board, one of which flew down the companion hatch on the table.

28th.—Saw Wick's Island bearing by compass N. $\frac{1}{2}$ W. 15'. Sent the chief officer to see what the island produced. South part of this island by good mer. obs. is in Lat. 19.19 N., Long. by lunar 165 45 E. It is very low and dangerous, being nearly level with the water; mostly covered with low bushy trees fit for firewood with a large lagoon in the center, but there is no appearance of a passage into it. The island is of no great extent being about 15' in circumference; its form being that of an acute angle.

30th.—Light and clear weather. At 3 p. m. the boat returned, bringing on board some firewood and fish which they caught with their hands; being so plentiful.

April 3rd.—Fresh and hazy weather ending squally: making much water by the pumps.

7th.—Moderate trades and clear weather. At midnight made the island of Agrigan. At 8 a. m. sent the boat after water. There is good anchorage here; water may be had out of a well over the sandy beach.

8th.—Moderate and clear. Messrs. Butler and Williams came on board, two white men that have been on the island several months. They greatly entreated me to take them to Macao. There had been a Spanish vessel here a short time previous and they were in expectation of being carried off by them. I granted them a passage to Macao but no farther. Got some refreshments and water from shore and took on board the following people: Two white men, five natives, two women and one child, and at 10 I took my departure.

18th.—Fresh gales and cloudy weather. Standing for the island of Formosa. Mr. Hunter much hurt by a fall from the foremast. Day ends clear.

24th.—Fresh breezes and dark gloomy weather. At 1 p. m. sounded in 23 fathoms sandy bottom. Saw the land bearing N. N. W. 20', and a great number of fishing boats. Got the anchors on the bows and bent the cables standing through among the Lima Islands.

25th.—Dark gloomy weather; standing in for Macao. At 5 p. m. anchored in the Tiper in 4 fathoms soft mud, and went on shore; Compradore brought off provisions.

26th.—At 6 a. m. returned on board. At 9 the English supercargo paid us a visit; he stopped on board four hours and then returned on shore.

27th.—Orders from the merchant to hoist no colors till further instructions. The Portuguese carpenter and caulker came on board to work.

29th.—A Portuguese officer came on board and left two men on board the brig from the custom house. Several of the natives sick owing to the change of climate.

May 5th.—Two large Chinese men-of-war anchored close to us. Natives convalescent.

7th.—Arrived from Canton brig *Cossack* of Boston, Captain Brown; received from her two barrels each of pitch and tar, and seven coils rope.

12th.—The *Cossack's* cables cut by pirates and was nearly getting on shore. 18th, unshipped the rudder and found two of the pintles gone.

27th.—A China pirate boarded the *Wabash* of Baltimore in the Roads and killed five of her crew, robbing her of \$10,000. From this to June 1st, nothing material; the *Wabash* anchored in the Tiper. From this to July 4th, nothing worthy of remark. Having finished landing the cargo received on board 12 hhds. rum, 12 of bread, 12 of molasses and a new cable. On the 9th, received on board some things for Dr. Elliott, and on the 15th received 47 packages for the king and Mr. Pitt.

July 17th.—One of the natives died. Making ready for sea.

25th.—Light breezes and clear weather; got under way at noon and took our departure for Owyhee. During the voyage—made long and tedious by adverse weather the first

few weeks and light airs and calms the rest of the voyage—much suffering and sickness prevailed among the crew, three of whom died en route.

October 3rd.—Light and cloudy. At 6 a. m. made the high land of Owyhee. Got anchors on the bows and bent cables.

4th.—Light airs and hazy weather; running for Waiakea.

5th.—At 5 p. m. came to in six fathoms sand and clay. Got off some water, and received some provisions from the shore.

6th.—Went on shore for supplies: sent a letter to the king. Employed repairing sails and watering ship: returned on board in the evening.

7th.—The chief officer on shore sick. From this time till the 15th fine weather, and having taken in some stores for the king, at 7 p. m. got under way and stood out of the bay.

17th.—At 5 a. m. Mr. Betty came on board, followed shortly after by several chiefs. Came to anchor off Karakakua in 15 fathoms, sand and rocks. At 8 a. m. I went on shore to wait on His Majesty.

19th.—Got under way at midnight for Kairua and came to anchor at 11 a. m.

The following day saw a sail in the offing which proved to be the brig *Cossack* of Boston, Capt. Myrick, for California. From this to the end of the month engaged in landing cargo, etc., comprising 5 chests black tea, 4 of hyson, 18 tubs sugar candy, 7 of sugar, 4 boxes of hats, 1 of shoes, 1 green trunk for the king, 10 puncheons of rum, one cwt. of nails, 3 boxes of paint, 3 jars of fine bread, 2 buckets flints, cables and water casks. Ship *Atla* of Boston, Capt. Winship, arrived, and at 1 p. m. we got under way and stood out.

November 4th.—Touching at Lahaina on the way arrived off Honolulu at 4 p. m. and found several vessels in port. Next day parted the best bower cable and lost the anchor; got a spare one from the shore. Strong winds. On the 8th, towed into the harbour. From this to the 16th, employed in stripping ship, sending ashore all her stores and running rigging fore and aft, great guns, locks, 2 muskets, 8 cutlasses, 7 pistols, 1 blunderbuss, 10 kegs powder, 6 cartidge boxes, 13 car-

touch boxes, 4 powder horns, 5 casks provisions, rice, sugar candy, tea, and molasses. From this to the 13th May, variously employed in the king's service, but now, according to contract with Mr. Pigot, I am bound to Kamschatka to navigate here the brig *Sylph*.

Sailed for Owyhee (in the brig *St. Martin*) on the 13th and anchored in Kairua on the 17th (May). Had an audience with the royal family who were lamenting the loss of their king who died on the 8th of this month, regretted by all. The Government now falls to his son Rihoriho, a young man twenty-two years of age. Sailed for Toihai; remained there a few hours then sailed for Oahu, thence to Attoi and Onneheou, from which I take my departure May 22nd for St. Peter & Pauls, arriving there June 16th.

June 28th, repaired on board the brig *Sylph*, laying moored in the harbour, to equip her, she being unrigged to a girtling. From this time till end of September engaged in fitting her and taking on cargo for the Sandwich Islands.

October 15th.—Got under way and stood out of the harbour, having on board as passengers Col. Dubell, (owner of the brig), lady and child, and arrived in Hilo, October 17th after a somewhat boisterous passage.

Received intelligence of the demolition of idolatry, by burning the idols, churches, etc. Men and women now eat together, being formerly prohibited.

28th.—Got under way for Kairua, arriving there in evening of the 30th.

December 1st.—The owner and myself on shore to pay our respects to the new king and royal family. The next day, December 2nd, while at dinner with the king, news was announced of a party on the north side of the island having rose in rebellion, owing to the late change of worship and reformation of government, the leader of the party being a cousin to His Majesty.

3rd.—The king and royal party on board to dinner; saluted them with seven guns. The following days Mr. Pitt and several of the chiefs were entertained on board. From this to

the 13th, nothing remarkable, when, after landing cargo and stowing casks, we sailed for Oahu, arriving in Honolulu on the 15th.

26th.—By the arrival of one of the king's craft we received account of the mutinous party's discomfiture in a battle within three miles of the royal mansion, where the principal leader Kuakarani, was killed and Naiha the second in command having laid down his arms and embraced the royal cause.

HAWAIIAN NATIONAL REMINISCENCES.

Being extracts from an address by John M. Kapena at the laying of the corner stone of the Palace (now Executive Building), December 31, 1879, by King Kalakaua.

THE ancient chiefs were remarkable for their fondness of traveling from one part of the islands to another, thereby evincing a spirit of enterprise and cultivating a talent for government. This was strikingly illustrated in Kamehameha himself, who when he found that by his own bravery and indomitable will he had become master of the larger portion of the island of Hawaii, he left his home in fertile Kailua and removed to the barren, sun-dried sea-beach of Kawaihae. At first glance, this would seem a strange proceeding on the part of the king, but it was only an evidence of his superior wisdom. He collected about him the captured chiefs, his own immediate warriors and his wise councilors, and kept them continually with, and depending upon him for their food and other necessities of life which came from his own storehouses, and were divided among them under his own supervision. By this proceeding the chiefs became entirely dependent upon Kamehameha: moreover, it was rendered entirely impossible to carry on any conspiracy or rebellious movement, for they had no means of their own to feed or support any of their adherents. Under these circumstances the king's wise men and councilors advised him to erect the temple of Puukohola, at Kawaihae, Hawaii, as a means of entrapping Keoua, the king's last contestant for supreme power, who was also a relation

of his. Thus came about the downfall of Keoua; the possession and complete triumph of Kamehameha over the entire island of Hawaii.

Subsequent to this event the seat of government was removed to the island of Maui. The policy of removing the seat of government to the place recently conquered was a wise one. If we consider the traditional history of the conquest of the country, we will perceive that in the places last conquered the chiefs and the court were always retained together, and shall understand that the great reason of this policy was to render the people of the conquered provinces quiet and contented with their condition under their new chiefs, whom they were thus brought to recognize as their undoubted conquerors.

The seat of government was first attempted to be established by the chiefs at Lahaina, and the court to be retained at that place, in consequence of which Hale Puila was erected as a palace, but which in after years became a court house and continued such up to the time of its demolition. Another reason which has forcibly impressed upon my mind the belief that the chiefs intended to settle permanently at Lahaina, is the fact, that at that place they first commenced an actual system of government by defining the different departments; there was also convened the first Legislature that ever existed in Hawaii nei, which at that sitting produced the now celebrated Blue Laws of Luaehu.

But as is too often the case with the hopes and aspirations of the sons of men, the intentions of the chiefs were doomed to disappointment. The seat of government was withdrawn from Lahaina to Honolulu, owing to the importance of its harbor, its central position in the group, and subsequently the large increase of its population. The advice and persuasions of the principal chiefs and councilors induced King Kamehameha III, styled Kamehameha III, to remove the government to Oahu in the year 1843, and he took up his residence in the Haleuluhe, at Pelekane, in the vicinity where now stands the Episcopal Church. Subsequently, in the month of July, 1844, Kekuanaoa commenced to erect the building recently demolished, known at that time by the name of

Hanailoia. It has been said that in olden times a large heiau or temple existed on this spot, the name of which was Kaahaimauli. The house was erected for the Princess Victoria Kamamalu, but Kamehameha III took possession of it as a palace, and from that time it was the home for the kings of Hawaii nei. At the time when Kekuanaoa erected the old palace, the grounds were not so spacious as they are at present. On the western corner was Kekuanaoa's house, which he had named Haliimaile; subsequently he commenced to erect a large stone house, the walls of which only appeared above ground; afterwards the stones composing them were sold by his son, Kamehameha V.

There, in the (south adjoining) premises known as Pohukaina, Kekauluohi, a premier, erected her house. When John Young was premier, he built and lived in Kinau Hale. There, in that house Hoihoikea, were transacted some of the most important affairs connected with the history of Hawaii and of the Hawaiian race;—there lived and died Kamehameha III, and within its walls were held many an important council to decide the interests of this nation, their advancement and their prosperity. The name Hoihoikea was in commemoration of the restoration of the sovereignty and the flag of Hawaii nei by Admiral Thomas. During the reign of Kamehameha V. cabinet councils were frequently held there. There was held the council which called the Constitutional Convention, the result of which was the abrogation of the constitution of 1852 and the promulgation of the present one. There Kamehameha V, he of the strong mind, humbly succumbed to his fate, and thus passed away the last of the Kamehameha dynasty. In that house also the present reigning family met with their first great grief, and far distant be the day when they shall be called to mourn another void in the family.

There, in the premises of Pohukaina, was erected the tomb of departed chiefs, and at the entrance of that sacred place was placed the body of John Young, one of Kamehameha's intimate friends. In order that the spot may not be forgotten where that tomb once stood, the king has caused a mound to be raised

there, crowned with ferns and flowers in memory of those who sleep beneath it.

Doubtless the memory is yet green of that never-to-be-forgotten night when the remains of the departed chiefs were removed to the Royal Mausoleum in the valley. Perhaps the world had never witnessed a procession more weird and solemn than that which conveyed the bodies of the chiefs through our streets, accompanied on each side by thousands of people until the mausoleum was reached, the entire scene and procession being lighted by large kukui torches, while the midnight darkness brought in striking relief the coffins on their biers. * * * *

The last house that was recently demolished was known on the makai side as Kauluhinano, and as Ikikapukalani on the mauka side, erected by Kamehameha IV for his queen, where they spent most of their time during his reign. Those who had the good fortune to be invited to partake of the gracious hospitalities of the king and queen will not soon forget the refined and courteous manners of those royal personages. In Ikikapukalani was born their child, the Prince of Hawaii.

The northern corner of these premises, connecting Richard street with Palace Walk, has no relation to the history of the chiefs of Hawaii nei, inasmuch as those premises belonged to the Sumner family; it was only recently that they were purchased in order to complete the square form of the palace grounds.

The frequenters of these grounds would readily bring to the mind's eye the forms of Judd, Lee, Richards, Wyllie, Armstrong, Robertson and Andrews, in their various positions as public servants and true friends of the Hawaiian people. Even now one can bring to mind the countenances of the departed chiefs who strongly upheld the hands of their foreign fellow councilors. After Kaahumanu the Second¹ comes Kekaukuohi and John Young, and now I fancy I can see coming up these paths with firm tread the stately forms of Paki and Kekuanaoa. Here also comes the jovial and pleasing countenance of Kapaakea, than whom none excelled in the qualities of caution and modesty in

¹ Kinau.

giving advice to his king, exceeding in this respect his care for his own affairs. Now before the mind's eye the stooping form of John Ii; and amongst those who served and labored for the good of the country and the progress of the nation we cannot forget Haalilio, Keliiahonui, Namakaeha, Kao and Kanaina.

* * * *

Standing upon this spot this morning, our thoughts revert to the chiefs and councilors who have departed before, and some remarks are suggested in regard to events of the past regime as compared with those of the present. Should any one consider it a light and easy task to conduct the affairs of our island government, he will be greatly mistaken, for evidently it will require all the skill, watchful care, patience, caution and industry that can be bestowed in the future, in order to secure the well-being of the people and the prosperity of the government.

The pleasant memories of my youth about this city of ours are still fresh. When the palace which once stood on this spot was built, this was a treeless plain, covered with creeping thorns, sparsely dotted with grass houses, among which wound narrow lanes formed by the banks of taro patches. Now, as we look about us on all sides all these things have changed. It would seem as if the bloom and verdure of the valleys had been transplanted hither; the handsome white residences, churches and hospitals, the water brought down from its mountain hiding places to the innermost homes of the people; the whirl of the wheels of vehicles of all descriptions along our streets; the clangor of hammers in the various haunts of industry; the construction of telegraphic wires and the telephone, carrying with the speed of lightning our spoken words. Looking towards the harbor, where thirty years ago there was but one wharf, that of James Robinson, whereas today the water frontage is nearly all occupied with wharves, while the once quiet surface of the harbor is now disturbed by the movements of numerous coasters, merchant and whaleships, vessels of war, our inter-island steamers and the periodical calls of the huge mail steamers.

Our commerce twenty-five years ago was next to nothing as compared with the present time, for in those days it depended

upon the visits of the whaleships; we produced nothing of importance for export except such articles as we might be able to trade with them during the winter months and a small portion of the spring, but during the long summer months we saw no more of these customers. In the year 1853 the total value of all our exports amounted to but \$148,685.76, and in the year 1878 the value of our exports reached the sum of \$3,247,879.49. Not only this, but we must consider the wages earned by the people. Formerly twenty-five cents per diem was considered high wages for a laborer, but now he demands as high as two dollars or more for a single day's work.

It is not, however, in this city alone that we find evidences of the changed condition of the people and the country. Let us turn our eyes to the windward islands and examine their conditions. A hundred years ago those islands were noted as being the theatres of war for their fearless braves, with their spears and javelins, where apparently the only use of the common people was to help their chiefs in their warlike pursuits, to implicitly obey; to trust and to love their chiefs.

But in these days, on those plains where once the flying spear and swift javelin were familiar objects, a great war of a different character is going forward on most of the fertile portions of the country. In the far distant past it was the fierce tread of armed men on their marches and in their combats that filled the air with the dust of their movements; but in these days it is the untiring point of the plow that industriously stirs up the dry soil which has so long lain fallow. The steam whistle echoes far and near, arousing the idle to join hands with the industrious that both may work together for progress. Fifty years ago, if a prophet had arisen who should have foretold that the wilderness of Kohala, Hamakua and Hilo, and the barrenness of Kau should be cultivated; that the rushing streams of precipitous Koolau, on Maui, that then ran to waste in the ocean, should be diverted to fertilize the broad plains of Kulaokamaomao; that the first telephone should be constructed between Wailuku and Haiku; that the first race of the iron horse should be from Hamakuapoko to the rise of Nehe; that Honolulu should witness the prosecutions of so

many industrial pursuits and the erection of schools and churches; that the bulrushes of the swamps of Ewa and Waikiki should be swept away by the agriculture of a foreign race; that the gushing streams of Kauai, famed in song, should be made to serve in fertilizing the land and doing the work of man, what should we have thought of such a prophet? We should have pronounced him a visionary, or a madman.

But in the past fifty years, during which we have enjoyed the benefits of an enlightened civilization, many and great changes have taken place, affording a noble contrast to the times of our forefathers. Today, every man is a freeman, our laws protect equally the person, the life and the property of every man, secure from injury or spoil. In these last years we have received a generous national concession,² which must encourage and consolidate our agricultural interests, giving new life to the land. And thus, as the country grows in wealth and the government in its ability to serve the people, in like generous manner and proportion may we provide a home for the kings of Hawaii.

* * * * Today the honorable duty has devolved upon the Masonic Order of laying the corner-stone of the royal palace here to be erected. * * * Three of the crowned heads of this kingdom were members of this Order, as was also the late lamented Prince Leleiohoku. The corner-stones of all our principal public buildings have been laid by the Order of Freemasons. Kamehameha IV, one of the wisest of our kings, and whose reign shed a lustre upon the throne of Hawaii nei, laid the corner-stone of the Sailors' Home and of the Queen's Hospital. Kamehameha V, the king of inflexible will and undaunted mien, laid the corner-stone of our much admired government building, Aliiolani Hale. We are now in the reign of Kalakaua, the only one of these sovereigns who has ascended all the steps of the craft, and has reached the pinnacle of Masonic honors.

* * * * *

And now, as we are gathered upon this spot, sacred to the memory of chiefs and kings who have departed, together we have laid this corner-stone of a new home for the kings of Hawaii nei.

² Reciprocity with the United States.

Our earnest desire, our prayer and our hope is that our gracious king shall be granted long life; to his family peace, health and honors; and for the nation and government continued progress and prosperity to the end of time.

MAMALAHOA, AN ANCIENT HAWAIIAN LAW.

Prepared for the Annual by C. L. Hopkins, Hawaiian Interpreter Supreme Court.

THERE is a great difference of opinion existing among Hawaiians as to the proper title to be applied to the celebrated law promulgated by Kamehameha the Great, wherein he declared that "the aged may lie on the roadside and they shall not be molested;" a law which gave to Hawaii an era of peace and freedom from rapine and murder, which were the order of the day prior to the promulgation of the said law. Some contend, that the cause which prompted the king to declare the law was on account of having been struck on the head by the paddles of a canoe in the hands of some of his enemies; this incident leading to the promulgation of the law known as "Mamala-hoe," meaning "splintered or broken paddles." The following is the true and complete narrative of the incidents which led to the declaration of Hawaii's renowned ancient law—a law which curbed the barbarous instincts of a barbarous race: a law which ameliorated the condition of the people and changed as well their manners and many of their customs, and which was in full force and effect during the time of the arrival of the missionary fathers in 1820, a year after the death of the great Conqueror. The story runs as follows:

Kamehameha had fought and defeated the combined forces of Keawemauhili and Keoua, the kings of Hilo and Kau respectively at the battle of Kauaawa in Hilo. After gaining a decisive victory over his royal competitors Kamehameha retired with his warriors to Laupahoehoe, a place near to his own domain, the districts of Hamakua, Kohala and Kona. While at this place

Kamehameha became desirous of making the acquaintance of the chiefs and people of Puna; of an impetuous nature, to think with him, was to act, so forthwith he ordered his navigator to have his canoe prepared and manned without the knowledge of the other chiefs. Everything being in readiness he embarked on his voyage to Puna at night. The trip over was a very stormy one; thunder and lightning accompanied by rains, and the sea lashed to fury, made the passage of the king an extremely hazardous and dangerous one; the navigator, however, was equal to the occasion and harbored his master so well that 'tis said that the king was not even wet from the waves. When daylight appeared they were off the landing place called Papai, near Papuaa, Keaau, Puna. Looking ashore the king could easily discern people on the sand beach mending their fishing nets. As the canoe was entering the channel to effect a landing the astonished people on shore were asking one another in amazement the identity of the strange canoe. Among those on the sandy shore was a man from Kona, who on seeing the king exclaimed, "Why, 'tis Paiea." "Who is Paiea?" queried the others." "Kamehameha" replied the man from Kona; on hearing the name, they were seized with sudden fear, and hurriedly and excitedly picking up their nets and conoe paddles they ran to near-by bushes among the pandanus trees. Kamehameha observing the men running urged his men to paddle faster, and no sooner had the bow of the canoe struck the beach then Kamehameha leaped ashore and immediately was in pursuit of the men, calling unto them at the same time to cease running, but in their fears they heeded not his call but continued to flee, intent on getting as far away as possible from the man whose very name was terror to all, not knowing what their fates would be. The king still continued in his pursuit until he reached a place called Mawae, known as the boundary of Hilo and Puna, when he accidentally got his foot in the crevice of a lava bed, and there held fast as if in a vise, preventing him from reaching two men who were evidently straggling behind under difficulties, for they were at the same time carrying their nets. They would surely have fallen into the hands of the king had not this accident happened. The two men still continued their

running, unaware of what had befallen the mighty king until suddenly one of the men, like unto Lot's wife, looked behind, when lo, to their great satisfaction there was Kamehameha some distance behind, not moving and seemingly in difficulty. They conjectured that there was trouble, so slowly returning to ascertain the cause they learned that the king's foot was held fast in the rocks in some manner or other and was unable to help himself. In this helpless condition the men proceeded to beat the king over the head with their paddles until they were broken into splinters. Thus left without other weapons to continue their assaults they both again took to their heels; then it was that the king looked around him for anything that he might lay his hands on and finding a loose stone he hurled it at the fleeing men; the stone missed the men but struck a small noni tree which it pierced, the missile flew on until it lodged itself in a precipice. The dent which the stone in its velocity made can be seen to this day.

The men who cowardly struck the king over the head with their paddles meeting the other men who were also on the run related to them the predicament Kamehameha was in and how they had broken their paddles over the king's head. They immediately came back well armed with spears with the avowed purpose of killing him. In the meantime, however, the navigator had arrived at the spot where his lord was, and was assisting him in extricating his foot from the crevice when they perceived a group of men approaching them with weapons seemingly intent on doing them injury. For protection they instantly gathered such loose rocks and stones as they could find, having in their great hurry neglected to bring with them their spears, and awaited the onslaught of the men. The Puna men were not over-anxious to come within too close range though aware of the predicament and helpless condition of the king. They kept themselves at a safe distance from which they could easily make out the ferocious looks and the seemingly burning eye-balls of the mighty king, a look which when once seen was enough to cower the stoutest heart. While occupied discussing as to what should be done one of the Puna men observing the king's navigator standing in an unguarded manner threw a spear at him, striking him in the

abdomen. Kamehameha observing his navigator wounded broke the spear, leaving the head of it in the body, and with this stick the king defended himself against the numerous spear thrusts which were hurled at him, continuing the battle until his opponents were left weaponless, when they again decamped to the woods. Kamehameha by great effort freed his foot from the rocks and then assisted his navigator to the canoe where they found the rest of the men who were unaware of all that had happened to the king and his navigator. The king related the circumstances of the wounding of his navigator and also of his having been beaten on the head by the men of Puna with canoe paddles, cautioning the men at the same time to keep the matter a secret, and particularly not to reveal to the chiefs and people of their trip to Puna, because if they were to hear of the matter, there would be such an outburst of anger for the indignities heaped on the king, that the life of the navigator would be in great danger for ever having permitted the king to depart on such a voyage. After this admonition, they set sail for Laupahoehoe. Upon arrival at Laupahoehoe of the king and his crew with the wounded navigator it was only a matter of a moment when all knew where the king had been, and what had happened to him and the navigator. Immediately there was a council of the chiefs held, and they decided that they should take to themselves the administering to the wounds of the navigator. A delegation was therefore sent to the king to notify him of the chiefs' desires in the matter, but the king positively refused to accede thereto, knowing full well that the decision of the chiefs meant harm to the navigator; the chiefs were equally persistent in their requests as the king was in refusing. At last the king weakened on their persistent assurances that no harm would befall the navigator, and gave his consent. The king had cause afterwards to forever regret having acquiesced to their wishes. The king addressed his chiefs as follows: "Chiefs,—where are you; the night we sailed was a tempestous one; rains, winds, thunder and lightning, with the waves mountains high, and yet through it all I was not injured nor was I even wet from the waters of the ocean. All this was due to the supreme skill of my navigator, who has no equal;

he was my 'companion' on that eventful voyage, therefore I request you that if it is your desire to heal his wounds, let it be done in my presence so that I may know what shall be done him."

Having heard the king's wishes, they took the navigator away under the pretense of healing his wounds, but for no other purpose than to torture him. They pulled the broken portion of the spear that was still in his body to and fro, back and forwards until the life was extinguished. He died from this awful torture, suffering the most excruciating pains. When the king was apprised of the death of his faithful navigator he gave way to an outburst of tears such as seldom comes to a man of his caliber and mighty strength. This action of the chiefs greatly grieved him. Rebuking his chiefs, he said: "In the beginning I told you to heal him in my presence, but you persisted in treating him by yourselves, and thus my 'companion' is dead. I, now declare, unto all of you, that henceforth 'Mamalahoa' is, and shall be the law of the land; let the aged man go and sleep on the road-side; let the aged woman go and sleep on the road-side, and let no one injure or molest them."

Mamalahoa is a compound word; mamala, meaning splinters or pieces, and hoa, meaning companion. The application of the word "mamalahoa" by the king commemorated two events, first the breaking of the paddles on his head by the men of Puna, and secondly, the death of the navigator whom the king feelingly called his "companion."

During the life time of Kamehameha there were only two instances known in which he ever used the word "*companion*" to his subjects; one, the occasion spoken of above, and the other when the king was well advanced in years and immediately preceding his death, he gave the title of "Hoapili" (companion) to Ulumaheihei and his wife, who were ever afterwards called Hoapili, kane (male companion) and Hoapili wahine (female companion).

The occasion which induced the king to confer this name to Ulumaheihei and his wife was when he had called his chiefs together to ascertain who among them would be best fitted to discharge the high and solemn duty of secreting his bones after his

death, so that no mortal could ever discover them. When the chiefs assembled the king observed that each chief had on a hair necklace, a feather wreath, or some other relic of departed chiefs, with the exception of Ulumaheihei and his wife, who were destitute of any ornaments. Kamehameha after surveying his chiefs said: "You, and each of you will never be able to hide me; you, and each of you have decorated yourselves with ornaments made of the bones of bygone chiefs." Turning to Ulumaheihei, the king said, You, Ulumaheihei, my hoapili (*companion*), You, alone will be able to undertake the task of secreting my bones, an office which Hoapilikane (male) and Hoapiliwahine (female) sacredly performed after the death of the king. So well have they done their work that to this day no one has ever been able to locate the spot where reposes the bones of Kamehameha the Great.

THE KAMEHAMEHA IV.-NEILSON TRAGEDY.

RECENT enquiry for particulars available relative to the shooting of Mr. Henry A. Neilson by Kamehameha IV., at Lahaina, in 1859, has drawn forth various accounts in our local press without much enlightenment, and for good reason.

In referring to the several journals of the day one is struck with the absence of any account of the occurrence at the time, reference only thereto being made ten days after the event, apologetically, in one of the papers, having had the promise that an official statement which had been submitted to the king for his approval, would appear in the government paper, hence, in deference to him no particulars of the unfortunate affair appeared in any journal, as the "prepared" statement evidently met with a "pocket veto." The *Advertiser* was alone in any reference whatever to the event itself. In an editorial

ten days after the shooting the *Polynesian* incidentally refers to the sad affair as cause for the prevailing rumor of the king's abdication. against which step it joins with its contemporary in vigorously voicing the public's protest.

Sheldon's *Reminiscences** has the following statement, which was probably the first account given here of the event, and from his connection with the public and press was eminently qualified to know whereof he wrote:

"On Sunday, September 11th, 1859, occurred a melancholy and tragical affair at Lahaina, which, as a matter of history, should not be omitted in these recollections. There was a gentleman of supposed independent fortune named H. A. Neilson, rather well educated, good looking, of refined manners, in short with all the concomittants of a gentleman. This man had become the almost constant companion of the king, Kamehameha IV. The royal party were on a visit to Lahaina at the date mentioned. Someone of the king's household had, it was said, poisoned the king's mind with insinuations as to Neilson's betrayal of the former's domestic rights. In a hasty moment the king seized a loaded pistol, and rushing into the house occupied by Neilson, whom he found lying on an extension chair, fired point blank at his breast. For a wonder the wound did not prove mortal, though Neilson was an invalid for many months, the ball having entered one of his lungs. The king subsequently found out his error and did everything in his power for the wounded man. He was in fact so repentant and ashamed of his hasty, intemperate act, that he proposed to abdicate, but was induced to relinquish the idea through the universal expression of public opinion against it."

The solicitude of the king for Mr. Neilson in his suffering was a matter of common knowledge, and borne out by his frequent special trips to Lahaina in consequence of reported changes in Neilson's condition, and subsequent care of him in this city.

*Saturday Press, July 21, 1883.

Upon the receipt of advices in November that Mr. Neilson was lying in a critical state, his illness having taken an unfavorable turn, the king, with Dr. McKibbin started in a small schooner, and was towed to sea. A like crisis occurred a few weeks later when he departed again for Lahaina. From this trip he returned January 6th, 1860, reporting Neilson's condition improving, with prospect of recovery. The latter part of the month he visited him again, as also in March, on which latter occasion he brought Mr. Neilson down with him, though in a very feeble state, unable even to sit up, so that he was brought ashore on a palanquin made for the purpose.

The (then) seaside cottage of the king, on the present site of the Enterprise Mill, was assigned to him for a residence. Subsequently he was moved to a cottage on Alakea street, just below the Wicke's premises, and which he occupied to the time of his death, which occurred February 12th, 1862, as shown by the following notice in the *Advertiser* of the 13th:

"Yesterday morning, Mr. Henry A. Neilson died in this city. In former years he was well known, but for two and a half years past has been confined to his room by the unfortunate occurrence which is familiar to all."

Mr. Gorham D. Gilman of Boston, then a resident of Lahaina, contributes the following account thereof in his usual reminiscent vein:

"I notice in the island papers what is said to be an incident in the shooting of Mr. Neilson by Kamehameha IV.

"I was a resident at Lahaina at the time; a tenant of the king; occupying the large straw house on the beach front well known as 'Halekamani,' built by order of Kamehameha I. for his daughter Nahienaena. It came to be the property of Kamehameha III., and from him with other property to Liholiho his heir. The king on his visits to Lahaina made use of the house as a place of call for the courtesies that could be extended to him.

"Only a few days before the shooting event the king and Mr. Neilson, with a few friends participated in a New England codfish dinner with me, as a novelty in the fish line. I recall a pleasing incident of the occasion. When salad was being

served Mr. Neilson asked if we would not like a New York dressing, and, as I recall it, the king urged it with the statement that Neilson was a master hand at making it. Quite a number of component parts were provided as called for, and the mixing went on with pleasant chat around the table. There were no clouds other than the cigar smoke from the Manila Cheroot, the prominent weed used in those days. It was a pleasant little party and is a treasured memory.

"The distance from 'Seaside Cottage,' as it had been named, to where the king and his party were staying at the residence of Governor Nahaolelua, was not more than a pistol shot. Of course our premises were so near that the shooting of Neilson was almost immediately known, word being circulated by some of the natives always about.

"My recollection of the incident is this: The queen and attendants were under the great branches of a large hau tree that covered much of the ground between the straw house and the wooden house of the governor, which was several feet from the ground, with a wide veranda all around it. The shade of the hau tree was the much more enjoyable to sit under. The king was not present in the early evening, but coming in later he fired the fatal shot. It was said he had been drinking; that he was a hard drinker. I do not think those who knew him well would allow this.

"The story of the looking glass in the shooting is very new to me. I do not recall any such glass in the house and doubt if there was one there.

"Of course the excitement was intense. Neilson was at once taken to the native house which he usually occupied, directly mauka of the one I lived in and away from the king's.

"In regard to the cause of the shooting. It seems almost impossible to believe that the king could have any real distrust of the queen. She was one of the last to be suspected, her whole life and character from childhood up was against any cause for such a thought. As in her later life, so in her younger and married life, like Ceasar's wife she was above suspicion. Some evil demon, some devilish Iago must have

distilled some damnable poison into the king's mind to have caused him to commit such an insane act.

"If ever mortal man suffered the pangs of remorse it was Liholiho the king. From the first sober moment, if he was drunk, he never forgot the deed, and all that he could order done for the poor unfortunate sufferer was done to relieve him.

"I used to visit Mr. Neilson and never a word did I hear him utter against the king. I believe that they were two friends until that fateful night. Neilson was an ornate gentleman of refined manners, gentle in his ways, well educated and well qualified by education and instinct to be His Majesty's private secretary; worthy the trust.

"In my recollection Kamehameha IV. was the most of a gentleman in his manner of the five kings I was favored to be acquainted with. He was so from boyhood. On one occasion I was permitted to be a guest with him and the queen and their party on an excursion to Haleakala. The king was the life of the party, very carefully looking after the comfort of the ladies particularly. He roasted the steaks on a long stick for them over the fire for supper, and saw to their sleeping quarters for the night, under the stars.

Another excursion with them from Hilo to Kilauea is well remembered, being in the early days when the accommodations were primitive. The old house at the volcano brink had altogether too many active occupants, so they were left unmolested as the party camped out of doors. On neither of these occasions did I see or hear of any intoxicating drinks being about. At this visit our old friend C. S. Bartow, then postmaster at Lahaina, was one of the party and made a new record. He proposed a night visit to the active crater. No one cared to accompany him and we tried to dissuade him from what was thought to be a hazardous trip. Securing two native guides with lanterns he started down the cliff, and we knew not what his reception from Pele might be. His return early the next morning was a great relief, when he was greeted with hearty applause at the success of his trip, *the first white person to pass a night in the crater.*"

Honolulu has especial occasion to remember with gratitude Kamehameha IV. The Queen's Hospital stands a splendid memorial to his kindness of heart, not only to the sick and suffering of his own people but to the unfortunate of any land cast upon the shores of Hawaii. It is much more agreeable to remember the many good qualities of our honored friend and ruler, than the few frailties of humanity he might have been subject to.

The Queen's Hospital, so named by the king in appreciation of his good wife, needed funds to carry into execution the philanthropic idea that was to be such a continuous blessing long after its royal projectors had passed beyond. I well recall the active canvass he used to make in the whaling season when the captains were on shore and generally in a cheery mood after the long Arctic cruise.

The king might often be seen down town where they congregated trying to interest one or another of them in his benevolent work. He was a most pleasing conversationalist; of very agreeable and gentle manner, and his power of persuasion was seldom exerted in vain. Generally dressed in quiet style in white linen and fine Panama hat, and as little of the mark of his high position as possible, he early won the confidence of those to whom he appealed. It was a noble work of devotion to the cause of relieving suffering humanity which is still bearing fruit to the consecrated service of one of the best of Hawaii's sovereigns.

NO SNAKES IN HAWAII.

NOT a little commotion prevailed in official circles and alarm felt throughout the community at the importation some months since of a number of live snakes for alleged exhibition purposes, notwithstanding the fact that a Custom's regulation prohibited their introduction.

Hitherto it had been the proud boast of these islands that it was as free from these poisonous reptiles as though the patron saint of Ireland held beneficent sway over this group, and it naturally followed that all residents were so appreciative of the fact (or supposed to be) that they would co-operate toward the perpetuity of this blessing and refrain from aiding their introduction. This did not prove to be the case, so that it became necessary to fall back upon law and the prompt pro-bono-publico action of a few citizens to protect the community and effectually kill them, ere permitting their landing, or risk their escape before being exported again, for the boxes containing them were very frail.

Collector Stackable reported to the Secretary of the Treasury under date of February 15, 1902, that there were "no snakes or poisonous reptiles at the present time in the Territory of Hawaii," and suggested that measures be adopted "to prevent the landing at any port in the Territory from foreign ports, or from the Continental ports, or Insular possessions, of any alligators, lizards, snakes, tortoises or other reptiles, or of the mongoose of India." In accordance therewith, the Department of Agriculture issued a circular under date of May 22, 1902, notifying "that permits will be required after July 1, 1902, for the entry of reptiles at all ports of the Hawaiian Islands in the same form as for mammals and birds. But no permits will be issued for the entry of poisonous snakes of any kind."

Following the above attempted importation, under date of June 29, 1905, a new circular was issued which we give herewith:

"Under the provisions of Section 1 of the Act of Congress approved May 25, 1905, entitled 'An Act to enlarge the powers of the Department of Agriculture, prohibit the transportation by interstate commerce of game killed in violation of local laws, and for other purposes,' the Secretary of Agriculture is authorized to regulate the introduction of birds and animals in localities where they have not heretofore existed,

and to make and publish all needful rules and regulations for carrying out the purposes of the act.

"In accordance with the authority thus conferred, and for the purpose of preventing the introduction of snakes into the Territory of Hawaii, the order issued under date of May 22, 1902 (Circular No. 36, Biological Survey), is hereby amended so that on and after August 1, 1905, and until further notice, no permits shall be issued for the entry of snakes of any kind at any port of the Hawaiian Islands.

"Shipments of snakes presented for entry will be immediately destroyed or returned to the port from which exported at the expense of the owner or agent."

REMINISCENCES OF THE STAGE IN HONOLULU.

Written for the Annual by the San Francisco correspondent of the New York Dramatic Times.

[This paper was prepared for publication in 1882, nearly a quarter of a century ago, but being deferred for verification on a few points it was so carefully laid aside as to become completely lost, and suggested the idea that some one more appreciative of the subject had discovered and appropriated it. Having accidentally found it again recently we give it place as is its due, in appreciation and memory of the writer—since deceased—feeling that the publication of its valued and personal notice of so many that have made "name and fame" in different parts of the world, though late in issue, rescues from oblivion much of deep interest to more than island readers that would otherwise be forever lost.—Editor.]

IN TIMES gone by, Honolulu can boast of having witnessed some of the best talent known to the English-speaking stage. Of late years, however, the muses have not attracted much attention, although the community is not altogether to blame in the matter. In the "good old days," when the whaling business added a large increase to the foreign element of Honolulu for several months in the year, California professionals were on the alert to avail themselves of the

opportunity thus presented to use up the Fall and Winter months, as "barn-storming" became exceedingly unpleasant and precarious in the interior of the State before the railroad era. This is the probable reason why so many bad actors also found their way to Honolulu during halcyon days of the drama, as the San Francisco theatres only gave employment to the superior talent, of which there was an abundance until the traveling season opened again. In September, 1876, during Edwin Booth's famous engagement at the California theatre, one of the local papers published what purported to be the career of America's great tragedian, and among other incidents, allusion was made to his Honolulu visit on his return from Australia in 1855, "*where he was compelled to act as his own bill-poster, as the native boys eat up the paste (poi) and threw away the posters.*" This is about as near correct as many other paragraphs seen in California and Eastern papers about affairs in Honolulu. Now it so happened I had a great deal to do with this very same business during Edwin Booth's visit which was during the early part of 1855, inasmuch as I was then employed in the old *Polynesian* office, and not only assisted in working off the aforesaid posters, but was often sent out to post them up when the regular bill-poster was otherwise employed. The veteran actor, D. C. Anderson, who in 1881 was a valued member of Mr. Booth's company in the East, was his stage-manager, at Honolulu, and in my humble capacity of "printer's devil" I was despatched with the proof of a street-poster of the opening performance, which was "Charles II; or the Days of the Merry Monarch," and an afterpiece. The foreman, who was none other than the late George McConnell, was very explicit in his instructions that I should wait for the "proof" and return with it. A stage rehearsal was in progress when I reached the old Royal Hawaiian¹, and as a very interesting little quarrel was going on between the people on the stage about the business of the piece, Uncle Dave Anderson as he is familiarly called, evident-

1—The Royal Hawaiian Theatre was on the corner of Hotel and Alakea streets, the site of the present Masonic Building.

ly forgot all about my humble mission, and thus it came to pass that I was not only initiated into the mysteries of a rehearsal, but was in a position to refute the unkind libel accusing the tragedian of being an amateur bill-poster. Miss Laura Keene, who afterward became a popular manageress in New York, accompanied Mr. Booth to and from Australia. Owing to a professional misunderstanding the lady did not appear with him in Honolulu, but kept on for San Francisco in the steamer *City of Norfolk*, Capt. James Greene, in which vessel they arrived from Australia. During my first visit to New York in the Winter of 1859, I dropped into Laura Keene's theatre, and there recognized the lady as one of the participants of the rehearsal-dissension at the old Hawaiian theatre, which five years previous, had cost me a severe lecture on procrastination, and the loss of a dinner. Allusion was also made to Mr. Booth being overworked during his first and only visit to Honolulu, which was quite probable, as the same performance was not repeated twice in succession, except during the last two nights of the season, when "Richard III" was performed, first for Mr. Booth's farewell benefit, and again on Saturday night, at the unanimous desire of the leading citizens and whaling captains, who were enthusiastic over the young tragedian's acting. On the first night of "Richard"—which I have reason to think was the first production of the tragedy in Honolulu—in the combat scene between the King and Gloster, Mr. Booth was so carried away by the excitement of the moment, that the actor representing the latter character narrowly escaped an ugly sword-wound. I saw nothing of Mr. Booth again until March, 1865, when he was at the Winter Garden, New York, where his Hamlet enjoyed the extraordinary run of 100 nights. In the cast, as the Ghost, was Charles Kemble-Mason, an exceedingly pleasant old gentleman who visited Honolulu in February, 1858, with Miss Emma Stanley, a clever English actress, who alternated nights with Miss Annette Ince and others, and gave a monologue entertainment that was much appreciated. It was owing to the courtesy of this veteran actor that I was enabled to witness

Miss Stanley's unimitable performance, and a rare treat it was to me, as it was the first time I had ever paid a legitimate visit to a theatre, though I confess to the exercise of considerable strategy to accomplish it, as my respected progenitor entertained moral and religious scruples against everything pertaining to theatres. My early experience in the old *Polynesian* establishment afforded me numerous opportunities of this character, and it is hardly necessary for me to confess that I made the most of them. Miss Ince, accompanied by her sister Caroline and her brother George, returned to Honolulu from their Australian trip in the Fall of the same year, and I left them there when, during the latter part of October, I started out with great expectations in search of a wider experience. Miss Ince finally settled in San Francisco, and when the California Theatre opened in January, 1869, she became the leading-lady of the first season's company, of which James Carden, who once had a peculiar experience in Honolulu, was the leading-man. She made several lucky investments in mining stocks, and at one time was quite wealthy. Her sister, Caroline, married and retired from the stage, and her brother became Major Ince, of the 71st Regiment, N. Y. Volunteers, and was killed at Gettysburg during the Rebellion.

Among those who were prominently identified with the Honolulu stage at an earlier period were Mr. and Mrs. D. W. Waller, who are still alive and residing in New York. They left San Francisco in December, 1853, for Honolulu, en route to Australia, and opened at the Varieties² some time in January following. Their season was undoubtedly the most successful on record, both financially and artistically. In those days Mr. Waller was considered a tragedian of more than average ability, while Mrs. Waller, whose forte was then comedy, devoted herself to tragic roles up to a late period. During January and February, 1876, the lady played an engagement at the California Theatre in the legitimate, but in personal appearance she had changed so much that I could

2—The Varieties Theatre occupied the site covered now by the von Holt Block, on King street.

hardly realize she was the same attractive little woman who used to appear in comedy characters with Harry Tuthill, whose Dr. O'Tool, in "The Irish Tutor," and kindred characters, made him famous as an Irish comedian long before he visited San Francisco, Honolulu, or Australia. It was this venerable actor who introduced Mr. Waller and G. V. Brooke, the former husband of Mme. Duret to the stage. He died in Dublin, in 1863. Mr. Waller in 1881 was stage-manager of one of the New York theatres and Mrs. Waller devoted herself to preparing pupils for the stage. I have lost all trace of the Bingham family who were identified with the Royal Hawaiian and Varieties from 1853 to 1854. The elder Bingham, who rejoiced in the stage cognomen of Wm. St. Maur, in the early part of his career, was said to have been well connected in England. After the Wallers went to Australia, he took up his former profession of portrait painting and occupied a studio on the corner of Merchant and Fort streets, in the upper part of the premises formerly occupied by Dr. Judd as a drug-store³. He likewise became a member of the First Congregational Church, and continued as such until his departure in 1856, I think it was. He and his son Sam were also prominently connected with Hawaiian military affairs, and usually attended divine service in full uniform. Somehow, I was rather uncharitable in my opinion of the elder Bingham's religious professions, and often, while listening to him as he participated in the Sunday afternoon prayer-meeting, it struck me that he was but acting a part, after all. In this connection, I remember Mrs. Joe Eldridge, who went to China with her husband, shortly afterward—meeting Bingham opposite the old Post Office and requesting his assistance in the matter of a benefit performance, which she was getting up. In reply to Bingham's assertion that he had done with the stage forever, the lady offered to wager that before she died she would hear of him on the stage. I could not help coinciding mentally with the remark, and but a few years had elapsed before

³—Site of the present Judd Building.

I saw his name mentioned as being in Canada with a theatrical company. In November, 1874, some one appeared anxious to ascertain the whereabouts of the Bingham, as an advertisement appeared in a New York theatrical paper to this effect. "The party or parties desiring to know the whereabouts of Wm. St. Maur Bingham and his son, can do so by addressing Manfred C. Bingham, Arch-Street Theatre, Philadelphia." From this, I should take it that at least the younger branch of the family had stuck to the business. I am unable to say what the elder Bingham's status as an actor really was, never having seen him on the stage; but I recollect hearing that he once created quite a sensation in the dress circle of the Varieties one night while playing the Ghost of Hamlet's Father, and nearly scaring the life out of the first Mrs. A. P. Everett, who was so overcome that she was carried out of the theatre in a swoon.

The best acting Honolulu ever witnessed in the palmy days of the drama was undoubtedly at the Varieties, which was mysteriously destroyed by fire on the Saturday night of July 6th, 1855, after an existence of twenty-six months. The opening company, under the management of W. H. Foley, was considered a very good one. Bingham was stage-manager, Paul Emmert scenic-artist, M. Brown, treasurer, Nelson machinist, and Hernandez leader of orchestra. Foley's original intention was to convert the building (which was previously occupied by Dickson Bros. as outfitting stores) into an amphitheatre and give circus performances, but a combination being formed with Bingham and other members of the Royal Hawaiian company, under J. C. Breslau's management, changed the contemplated order of things, and on the night of Sept. 12th, 1853, a melodrama called "The Wife, or a Tale of Mantua," and the old-time popular farce of "The Rough Diamond" embraced the initial performance. The company included the elder Bingham, Sam. Bingham, John Bingham, Joe Downey, C. W. Vincent (under the *nom de theatre* of Tokelley), John Brown, J. R. Price, W. C. Lloyd, A. J. Hoyt, Clifton, Clifford, Collins, Smith, Mrs. Foley, Mrs. John Bingham,

and a Miss Montague. The latter was a novice, and made but one or two appearances. She afterward became the wife of W. E. Cuttrell, who kept a saloon called the Merchants' Exchange, now known as the Union. Mr. and Mrs. H. J. Ray, who kept a hat store in a little frame building on Nuuanu street, just above where McLean's fire-proof store stood, joined the company shortly after the opening and at the wind-up of Foley's career they went to Australia, where they died several years later, within a few days of each other. The Rays were identified with the first regular dramatic performance given in California, the bill being "The Bandit Chief" and "Love in Humble Life," in both of which pieces Mr. and Mrs. Ray took part on October 18th, 1849, at the Eagle Theatre, Sacramento, there being only one female character in each. Best seats sold for five dollars and three in the pit. Foley's management of the Varieties was brief, extending but a few months at the most, when he made preparations for his departure for Australia on the Hawaiian schooner *Pau*, of which Pierce Haggerty, who had been doing business as a commission merchant in the upper portion of Cody's building on Kahumanu street, adjoining Schaefer's store—was the captain and owner. I have reason for believing that Louis Franconi, one of the proprietors of the old Globe Hotel, which stood back from the corner of King and Fort streets, was interested with Foley, in the Varieties. Whether so or not, the latter arranged with his creditors by transferring his interest to Downey and Emmert. It created no surprise, therefore, when Downey, accompanied by several officers and a boat from the U. S. Ship *St. Mary's*, accompanied the *Pau*, outside the reef, where they were to take leave of the Foleys and others on Sunday morning. The party had been making a night of it at the French Hotel on Fort street (formerly the old Government offices), principally at Downey's expense, or rather, as events proved at old Victor's expense, for Downey refused to return with his convenient companions of the night before, whom he had successfully used for the occasion. When the facts of this well-planned exit became known the day follow-

ing there arose a loud wail from a combination of duped creditors. A similar game was also played at the expiration of Ben. Moulton's management the following season, who took from San Francisco the nucleus of a company which included W. H. Wilder, Mrs. Moulton and a Miss Josephine. At the end of the season, the principals secured their return passage by the clipper schooner *Restless*, then a favorite packet under command of the venerable Commodore Paty. Moulton, who was a special messenger for one of the Express companies in early days, bribed the officers of a whaleship that was laying "off-and-on" to watch the movements of the *Restless* as she left the harbor, and when she reached the usual three leagues off-shore, to put him on board of her, which they did in the most successful manner, as it was not unusual for a San Francisco packet to be thus intercepted by a whaleboat bearing mail matter. Moulton was killed in 1862 in front of the Lyceum Theatre on Commercial street, in a quarrel with Joseph Brewer, a circus man who had visited Honolulu on several occasions. It was a case of self-defense, and Brewer, who was an invalid, was legally justified in shooting his powerful adversary. Mrs. Moulton retired from the stage after this and married an individual who kept a grocery store in the locality formerly known as the Mission. Miss Josephine who is dead, married the proprietor of a large tinware and plumbing establishment on Washington street, named Snooks. Wilder made a second visit to Honolulu in September, 1856, with the Graves family, of which Miss Louise was the most talented member. In 1881, he was what is termed a broken-down actor, attached to one of the New York theatres in a minor capacity. Louise Graves became the wife of a Mr. Coe, formerly president of the old Pony Express Company and subsequently a San Francisco School-Director. Her daughter developed into a handsome young lady, strongly resembling her mother in her younger days. She has the reputation of being an accomplished pianiste, and has attracted much attention on several occasions in concert. Frank Mayo, a handsome young fellow who was a member of the Graves com-

pany, has since acquired fame and fortune as the representative of the picturesque American drama "Davy Crockett," which has been a great attraction at the California Theatre for several seasons during my residence in San Francisco. I had almost neglected to mention a split that occurred in the Varieties company in November, following the opening, the elder Bingham and several others returning to the Royal Hawaiian, where Edmund Pillet, from San Francisco, made his appearance as Hamlet on the night of Saturday, the 29th, Bingham appearing as the Ghost, Clifton as Horatio, and Mrs. Fiddes (formerly Miss Cawes, of the London Theatres) as the Queen. "The Lady of Lyons" was also given as an after-piece, Pillet appearing as Claud, and Miss Josephine making her first appearance on any stage as Pauline. She eventually became quite a favorite in London where she made her debut at Astley's Amphitheatre, May 16, 1864, in "The Spy of the Republic." In June, 1870, in conjunction with her husband, Dominick Murray, she played an engagement at Maguire's old Opera House. The last I heard of her was in London, a few years since, where she threatened to make her appearance as Mazeppa. Mrs. Fiddes gave several concerts during her sojourn in Honolulu, one of which, on the evening of October 31st, 1853, was quite a fashionable event, as on that occasion, Miss Emma Rooke (late Dowager-Queen Emma) made her appearance and was escorted to the stage by Prince Liholiho (Kamehameha IV), and Mrs. Fiddes, the latter presiding at the piano.

The Backus minstrels occupied the old Hawaiian on two occasions within a year, their first visit, en route from San Francisco to Australia, being in August, 1855. On their return to the United States an article appeared in an Eastern paper giving a sensational account of their Honolulu experience and reception, and among other things, an outrageous reflection was cast upon the Missionary element and church-goers generally. The venerable *Friend* took up the matter and handed the subject in fine style. Backus later became part proprietor of a popular minstrel organization in

New York. Lambert F. Beatty, who visited Honolulu in November, 1855, with a company including Mrs. Beatty, Miss Eloise, Miss Immel, James Carden, W. C. Lloyd (in 1881, the efficient stage-manager of the Tivoli Garden Opera House), Johnnie Rowe and several others. George Galloway left a whaleship and joined this company, making his first appearance on any stage under Beatty's management. Walter Bray, whom I supposed until recently was an old stager, deserted from a whaleship and was hid away for several days after the departure of his vessel in the lumber room of the theatre, and he and Galloway stuck to the stage and branched out into the minstrel business, in which Bray gained some distinction. He became the inmate of an Eastern Insane Asylum several months since. Beatty, on his return to California in January, 1860, drifted into the interior as manager of a traveling company. He died in June, 1871, at Olympia, Puget Sound. Little Johnnie Rowe, as he was generally called, was a noted character from the fact that he came to California in early days with Col. Stevenson's famous regiment of New York Volunteers, and was the original Pauline in California of a performance of "The Lady of Lyons" at a mining camp in Sonoma, in 1849. At the time of his death, which resulted from lock-jaw in 1868, I think it was, Rowe was engaged in the milk business in Honolulu. To return to the old Varieties again, I am inclined to the impression that the wound which J. H. Brown received from a dagger, in Foley's time, was not inflicted by himself, as was generally supposed, but by Mrs. Foley. Mr. Brown, I am aware, has always been reticent and evasive when any allusion has been made to the subject, for which he undoubtedly had excellent reasons. It is only a short time since that the matter was referred to by an eye-witness, whose veracity I have no reason to doubt. Mr. and Mrs. Foley separated some time after reaching Australia, and when I last heard of the lady she was the leading attraction of an insignificant strolling company that made periodical raids through the smaller towns of New Zealand. Foley married a circus-rider. Several months ago a young Australian actress named Kate Foley, said to be his daughter,

arrived in San Francisco. As these reminiscences have extended much beyond the limit intended, I must summarize the remainder of my material in order to mention those who have acquired more or less prominence on the Honolulu stage.

The talented and eccentric Walter Montgomery who sojourned quite a while in Honolulu, en route from Australia to San Francisco in 1870, became manager of the Gaiety Theatre, London, for a short season the year following, where he made his last appearance as Gloster, in "Richard III." He committed suicide by shooting himself Sept. 1st, 1871, in his 44th year. The cause assigned is said to have been the discovery that he had married a woman who had a husband living at the time in Boston. She returned to the United States, and after a career on the stage under the name of Winetta Montague, during which her beauty attracted more attention than her talents. In January, 1876, she made her first San Francisco appearance at the opening of the Grand Opera House, and in June, 1877, she died of consumption in a New York hospital. Miss Rose Evans was another celebrity whose eccentricities attracted much attention in Honolulu and elsewhere. Like Montgomery, the lady was an American, although brought up in England, where she died March 8th, 1875, at Newcastle, where she made her last appearance at the Lyne Theatre, about a week previous to her death, as the Princess in the pantomime of "Alladin." The celebrated comedian, Charles Matthews, who was also en route to San Francisco in 1871, was persuaded to give an entertainment under the impression that the King would honor him with his presence, and great was his disgust on learning that His Majesty (Kamehameha V) was unable to attend. He died in London at the ripe old age of 74, June 24, 1878, and appeared on the stage until within several months previous. Mme. Agatha States, whose operatic season was much enjoyed in Honolulu on her first visit in the latter part of 1871, while en route to Australia, died suddenly in New York, Sept. 2nd, 1874. Her sister, Alicia Mandeville, who accompanied her to Australia, was drowned off Cape Flattery, together with an elder sister,

by the foundering of the steamer *Pacific*, on the night of Nov. 4th, 1875. Mme. Marie Duet-Leroy, who visited Honolulu several times in company with her husband, J. H. Leroy, died in San Francisco, April 6th, 1881, of paralysis. Her husband dropped dead while playing cards on the night of Sept. 15th, 1878, heart disease being the cause. Frank Jones, the popular song-and-dance man who appeared in conjunction with Daniel E. Bandman, Millie Palmer (Mrs. Bandman) Joseph Raynor, Maggie Knight and others, early in 1871, at the old Hawaiian, became recognized as a variety star in the East. His wife is known as Alice Montague, a serio-comic singer. As a girl in Honolulu, she was known as Alice Greene. Raynor died in New Zealand or Australia. Maggie Knight became a popular soubrette in Australia, where Bandman located. Mrs. Bandman separated from him and went to England. Annis Montague-Turner, the Hawaiian nightingale, has become an immense operatic favorite in Australia, and with her husband⁴ is liable to remain there for some time. Charles B. Welles, who was twice the manager of a California company in Honolulu not long since, is, at this writing leading man at one of the Philadelphia theatres. Miss Nellie Holbrook and Willie Simms, who often speak of their very pleasant experience in Honolulu, recently supported W. E. Sheridan in his famous rendition of King Lear at Baldwin's Theatre, and are now making an extended tour of the Pacific Slope with him. Now that Honolulu is able to boast of a handsome and comfortable theatre, I have reason to think the casual visits of respectable talent will not be quite so limited as hitherto, especially as there is an increasing demand for American professionals in Australia. Before closing this very imperfect and rambling article, I must not neglect to mention my esteemed friend, W. T. Porter, the talented scenic artist, whose excellent work on the new theatre is so highly spoken of by visitors from Honolulu. The gentleman has been for some time scenic artist of Baldwin's Theatre, and always alludes to his Honolulu visit with enthusiasm.

4—Mr. Turner died in New Zealand during an operatic tour in 1894, since which time Mrs. Montague-Turner has alternated her residence between Honolulu and San Francisco.

EARLY SANDALWOOD TRADE: HAWAIIAN VERSION.

THE following notes relating to the early sandalwood trade of these islands are of interest as connected with our paper on this subject in last year's issue. For the most part they are the literal translations of accounts given by the native historian S. M. Kamakau, and selections from "Fragments of Hawaiian History" recently met with in early numbers of the *Kuokoa* and carefully translated for the *Annua*l.

KAMAKAU'S ACCOUNT.

About the sixth or seventh year after Kamehameha's arrival at Oahu with his peieleu fleet, numbers of vessels engaged in trade with Manila and Macao arrived, whose captains assured Kamehameha and the chiefs that the fragrant sandalwood was of great value, and was much in demand in Macao and all other parts of China. Therefore Kamehameha quickly commanded that the mountains of Oahu be searched for it, and on being found and brought in it was declared by the foreigners that Hawaii possessed the fragrant wood. Captains McCook, Ogden, "Kawilpott," Winship, Bartow, and Davis took large quantities of it to Canton and Macao, and brought back much goods. The kind of goods brought here in quantity to trade for the sandalwood comprised various kinds of prints, cotton, mixed piece goods and clothing. [The list of names given are of kinds or qualities of goods so long out of market and fashion as to be quite unknown to the island trade of today.—Ed.]

When Kamehameha removed to Hawaii, on reaching Kani-aukani he sent the sandalwood cutters into the mountain forests of Kona and Kau, and gave them clothing and mamaki kapa, and furnished them with plenty of food and fish (ka ai a me ka ia). The conveying of it (the sandalwood) to the ports of shipment was by the common people of the districts.

And thus it was in Kohala and Hamakua. In like manner did all the chiefs in sending their people to hew sandalwood.

In consequence of the number of chiefs and people devoted to the cutting of this wood and conveying it to the various shipping points, a severe famine ensued which extended from Hawaii to Kauai. * * * Kamehameha observing this charged the chiefs and people that they be not so absorbed in sandalwood gathering, and thereupon kapued it to (or for) the government. He directed that the chiefs and people should till the soil, and he himself engaged in cultivating the ground and likewise directed those about him. The field of his personal farming, called Kuaheua, is situate above Kailua, in Kona, and it is said that afterwards, for many years, it was marked by the non-appearance of any weeds. * * *

Shortly after the death of Kahalaia (in 1826) the King Kaulikeaouli with his chiefs, retainers, young marines, and certain others set out to collect sandalwood above Waialua adjoining Waimea; above at Kolokini and Waoala; at Aikanaka and Kaloka; above Makaleha and also above Mokuleia. At the time of the king's cutting of sandalwood at Waialua he was but thirteen years of age, but prompt and business like. * * *

At this expedition much sandalwood was obtained and three-masted vessels conveyed it to Honolulu. The balance was loaded on the Portuguese three-master, and the *Kaainoa-nui*, belonging to the king, was filled to the full. Manuia and Mr. Roberts, a young Englishman belonging to Boki, were sent in charge of the cargoes to Macao, China. But in the taking of the sandalwood vessels to China they learned not its value. Manuia sustained a loss and sold it and the king's vessel and returned with Mr. Roberts on Captain Cole's ship. * * *

FROM FRAGMENTS OF HISTORY.

Some years before the arrival of Alex. Adams¹ search was made in the mountain forests for sandalwood. Because of

¹ Captain Alex. Adams arrived at the islands in 1816.

the fragrance of the naio² it was supposed that it would meet the demands, therefore, this variety of wood was taken to China, but found to be worthless. In consequence of this the iliahi was assured to be the wood wanted, whereupon diligent search in the forest stretches of these islands was made, and there was sent on certain American vessels this desired kind of wood. There were three three-masted vessels which sailed for China, and each vessel took several natives to help on the voyage and in their discharge at China.

Upon the return of the vessels they anchored off Mama'ia³ while the boats passed on from Ulaka⁴ to Pakaka⁵. The boats were gaily decorated, and the men wore soldiers' red coats and had shiny hats on their heads. They were thought to be foreign man-o-war's men when in fact they were the returned Hawaiians from China. Men, women and children gazed at them from below Kakaako, Pakaka and other places, as they strolled about, for it was the first known of these new things in Honolulu. "Wonderful indeed"! was the expression of the time. But these and all other things of the kind were Kamehameha's.

Being assured that the sandalwood of these islands had real value, large numbers of the people throughout the group were sent to collect it, and it became the article of trade. And because of this, vessels came to these harbors continuously from that time. It was thought that upon Kamehameha's removing to Hawaii a large increase in sandalwood trading vessels would follow, for these captains took frequent cargoes of it to China whereby, it was said, their owners became very wealthy. And thus it probably was with the majority of the vessels which traded for sandalwood at the various ports. * *

It is said that an agreement was made between the king and the captain that conveyed the chiefs in their inter-island

2 Bastard sandalwood—*Myoporum sandwicense*.

3 The anchorage outside the spar buoy.

4 Light house point.

5 Robinson's point.

travels, to load up the *Lelepali*⁶ with sandalwood and dispose of it and the vessel, for it was becoming old. This plan was carried out and a foreigner of good standing was placed in charge thereof and sailed for China. * * *

In due time there returned here the one who took the *Keoua Lelepali* with sandalwood to China, and it is said he placed in the hands of the king \$10,000. If the report is true there is ground for belief in the foresight of the king in his course with the vessels and Americans, as has been shown.

ODD NAMED LOCALITIES.

AN EARLY instrument of record, conveying certain property in the town of Lahaina, Maui, locates it by terms of a decidedly nautical flavor, no doubt well known then when it was so frequented by whaleships, but now lost and forgotten.

Like names were applied to various locations in Honolulu, along in the "early fifties," which are recalled by the above incident and clearly indicates, like Lahaina's, their source of origin.

BLACK SEA was that portion of Honolulu lying back of King and Maunakea streets, toward the stream.

JAPAN SEA comprised the upper part of Maunakea street toward the Nuuanu stream.

YELLOW SEA lay back of the Commercial Hotel, corner of Nuuanu and Beretania streets up to Kukui lane.

CHINA SEA was that portion of the town which lay on both sides of Smith street, between Hotel and Beretania streets.

CAPE HORN comprised the Kaumakapili block.

COW BAY was off Maunakea street and extended to the stream, and was reached by a lane leading by Liberty Hall, known to some as *Bugle Alley*.

MOSQUITO BAY lay in the rear of Dudoit's (later Dickson's) premises, reached by a lane off Beretania street.

⁶ Known also as *Keoua Lelepali*.

BURIAL CAVES OF HAWAII.

Written for the Hawaiian Annual by S. Andwich.

EARLY proclivities for searching out small caves in the hills of eastern Massachusetts, or making like hiding places in sandhills and haymows was not a bad schooling for the cave hunting experiences in Hawaii with which I was favored some years later, since those boyhood pranks—with the weirdness and fear induced by the recital of ghost and goblin stories which seem to many, as then to myself, to be the natural topic of entertainment in such dark places—proved essential helps.

Once our uncanny stories become very real, for in trying to reach our cave through its narrow entrance we suddenly met an old black cat that was as much frightened at the meeting as we were, and as quickly determined to get out by jumping over my body, as she did, leaving the marks of teeth and claws upon me as a souvenir to this day. While my Hawaiian experiences may not have left like indelible impressions, they have left memories which, also, can not be effaced.

On coming to these islands and hearing of the burial caves of Hawaii, I longed to find and visit them. It was, however, several years before I found any of real interest, and might not have done so then but for a chance acquaintance made with an old Hawaiian who had been a retainer in the service of an alii, or high chief. We were a party of three, at this time, and under his guidance we found several caves of great interest. I believe but few people have been so fortunate as ourselves in the number of interesting caves visited.

We found a few caves which had not been used much for the purpose of burying the dead; but this only stimulated our desire to find a true burial cave. For a long time we were doomed to disappointment. Rumors came to us now and then of ancient burial caves here and there, especially along the southern coast of Hawaii; but we could find no one who knew, or would tell, of

their exact location. We used to believe this to be pretended ignorance, but have since concluded such was not the case, as it seems to have been the custom to confide the place of burial to only one friend and often only under the strongest promise of secrecy, for fear of the remains of their dead being disturbed by their enemies, or their bones being used for making fish-hooks.

At last, early in July, just a quarter of a century ago, we were rewarded by finding an old Hawaiian, who yielded to our persuasions and agreed to show us where caves used for the burial of chiefs and priests could be found. Accordingly on the following day at day-break we started, and at eventide we returned, bringing a treasure for the hunter of relics, in the shape of a large stone axe which we had good reason to believe was used by Kamehameha I., or one of his followers. We also brought back an old pipe and a few other trinkets, besides the report of the discovery of a large cave which had never been explored.

We rejoiced at our discovery and at once planned to profit thereby on the first moonlight night possible. We were obliged to go at night, for the old Hawaiian who acted as guide insisted that any expedition to such caves as he was about to show us, should be in secret. To the present day, I believe he intended that the location of the caves should not be remembered by us, as the landmarks were not plain and only a person with a good memory for locations would ever be able to return to one of them again.

We started at dusk and rode for some fifteen miles. At first we traveled along a road lined on either side by fields of cane in all stages of growth. Soon the ground became dry and rocky. There was no vegetation of any kind, though there were many evidences of cultivation in early days, giving proof of the large population which Hawaii must have had at one time.

We soon came to a great heiau where in the past, and possibly within the memory of some then living, human sacrifices were offered to the gods. There was the great stone wall many feet high still standing, and the great sacrificial stone was pointed out to us.

Leaving this interesting place, we proceeded south. The full moon and cloudless sky, caused the sea to look like glistening silver, and even showed the outlines of Maui in the distance. We rode onward talking cheerfully as we went. Our horses were fresh and the miles sped past. After riding for about eight miles, we came to a ravine. In this we found the opening of the first cave not far from the road. We lit our lanterns and prepared for our first trip underground. As the cave was not a large one, we did not use thread or anything else to help us in finding our way out. This cave consisted of a single room about sixteen feet either way, with a low ceiling not over ten feet high. The floor was irregular, with shelves or ledges on the sides. The cave had not been used for burial purposes for many years, and there were no signs of the modern method of burial or of any coffins; but in this cave we found the large stone axe before mentioned and also the pipe and Hawaiian skates, I should call them; but did not discover anything new on this night. We since learned that this cave had a sub-cave much more interesting and entered by means of a small opening in the floor, which was covered by a large flat stone. We noticed the stone but did not then think to try to remove it. We were told and believe truly that in the lower cave, more valuable relics were to be found which belonged to a chief of Kamehameha.

Our stay here, however, was short, having but little time, as the cave which was the real object of our journey was several miles away.

We continued our way over the lava rocks which were not only free from any sign of vegetation, but worn smooth by animal travel. Our way lay about a mile from the shore and we expected to find the cave in the side of some hill or ravine.

After traveling for about six or eight miles farther we were stopped and told that the cave should be near and sure enough, after a few minutes search we found a small hole not much larger than a barrel, which we were told was the mouth of the cave.

After a little discussion as to the best way of getting out again, we lowered one of our lanterns into the cave. The sight did not tend to reassure us as only more hole, deeper and darker, met

our eyes; but we followed our lantern, at first going nearly straight down and then at a sharp angle to the right for thirty feet or more (crawling on our stomachs). Then another turn to the left. After going a short distance the passage began to enlarge, and we came to a small room, which we thought was the cave proper, but it proved to be only a hall or vestibule.

After another comparatively short crawl we found ourselves in a large cave. There seemed to be a current of fresh air which came, probably, from an opening by the sea. The roof, floor and sides were of lava which looked fresh as if from a flow of yesterday; it was in many grotesque forms and bright colors which perhaps gave the early Hawaiians the idea of coloring found in many of the kapas in the cave and worked in patterns similar to the lava of the roof. This cave, like the smaller one, was evidently not of recent use, as we found nothing of iron, other metal, or wood work except such as was done with the sharp stones of the ancient people of Hawaii.

I do not believe burials had been made for one hundred years or more. Of course, the real interest in the cave was not in the lava flow or the winding passage, or even in the large room itself, which was about sixty feet wide and over fifty feet high, (and during the night we traveled not less than two miles without counting small caves and side passages), but in the wonderful work of man's hand and the work of the great leveler of all mankind. Here the bones of chief and priest lay side by side with those of their most humble followers. The bones were laid in great piles and bundles, and but for the fact that they were wrapped in many thicknesses of kapa, they might have been mistaken for packages of Japanese rice, ready for shipment. I think there were over a thousand of these bundles, a few of which we opened and found the bones remarkably well preserved. The dry air and I suppose the thick kapa coverings made so good a non-conductor that decay had never entered there. It was evident from the condition of the bones that the flesh had been removed from them and the bones disjointed before being put in their strange caskets. There were some that were

not dismembered, and these we took to be the chiefs or priests, as near them, such relics as we obtained were found.

Around the neck of one was a hair lei, so dear to them, and an emblem of rank. We found idols, pipes, round stones for games, poi-pounders, kapa-pounders, stone axes, spears, stone lamps, and other articles of much interest. One thing that interested us very much among the bundles, covered as before mentioned with many thicknesses of kapa about four by five feet square, (in some cases more than twenty kapa being used in a single bundle), was a perfectly preserved body of a child about three years of age. The form and features were perfect; forming as perfect a mummy as ever came from Egyptian burial places. If only her lips could tell the tale of her short life, how interested we should have been!

We left her there with her fathers. As it was now nearly morning we left the melancholy chamber of the dead and were glad to be above ground once more. In the light of the moon now dying in the west, a somewhat serious party, we returned to our homes.

Later we found other caves; some on the sides of steep precipices, reached only by feats of great daring or danger, as also one large one whose mouth was covered by the sea, but none quite so interesting as this cave of Hawaii.

A VISIT TO WAIMEA, OAHU.

SCENE OF THE DAEDALUS TRAGEDY OF MAY, 1792.

IN the northern shore of the island of Oahu, on the route of the railway between Waialua and Kahuku point, lies the once verdant and picturesque, but now barren and almost deserted valley of Waimea. In early years it was populous and fruitful, and until comparative recent times was a famed and charming spot.

Like its namesake on Kauai, Waimea has the distinction of being the first place, on Oahu, of communication with foreigners, as the *Discovery* and *Resolution* on their way to Kauai, after the death of Captain Cook, touched here February 27, 1779, in search of a watering place. The scene impressed the narrator as follows:

"* * * The sight of a fine river, running through a deep valley, induced us to come to an anchor in thirteen fathoms water with a sandy bottom, * * * the mouth of the river bearing southeast half east, one mile distant * * * We were much disappointed to find the water had a brackish taste, for two hundred yards up the river, owing to the marshy ground through which it empties itself into the sea. Beyond this, it was perfectly fresh and formed a fine running stream, along the side of which I walked till I came to the conflux of two small rivulets that branched to the right and left of a remarkably steep and romantic mountain. The banks of this river, and indeed the whole we saw of the northwest part of Oahu, are well cultivated and full of villages; and the face of the country is uncommonly beautiful and picturesque."¹

Another early writer gives this description of it: "The valley of Waimea, through which a stream from the mountainous interior winds its way to the ocean, is almost environed by mountains rising beautifully on three sides of it, one behind another, from the seaside to the interior, and exhibiting a fine picturesque amphitheatre, with hamlets, trees and plantations."²

Though small in area the valley was noted for the quality and productiveness of its products. The choice quality of its pink taro is said to have secured Waimea the monopoly of the *alii* (chief) trade, and became known in market as royal poi; its oranges vied with those of Kona for choiceness, while the waters of its bay, to the present time, have been noted as being favored of Kuula—the Hawaiian fishermen's deity—for the quantity and superiority of its fish.

¹ Cook's *Voyages*, London, 1784, Vol. III, p. 87.

² Bingham's *Sandwich Islands*, p. 295.

These, with various other incidents which many readers of the *Annual* may recall, as also the prominence it holds in island tradition, have combined to make this one of the famous spots of Oahu's history, the most important of which was the unfortunate tragedy attending the visit of Vancouver's store ship, *Dædalus*, May 11, 1792, the second foreign arrival at this place, in the unprovoked attack by the natives upon the boat's crew which had landed in quest of water, and the murder of Lieutenant Hergest, the commander; Astronomer Gooch and one seaman.

About three years ago the Hawaiian Historical Society assumed the laudable duty of locating the notable spots or landmarks of Hawaiian history, so that in due time suitable tablets might be erected at such localities to commemorate the circumstance or event connected therewith. Deeming the sad incident above referred to as rendering Waimea entitled to such recognition lent the writer additional interest to a pleasurable journey.

First thought might deem it a waste of time to think of obtaining any information of interest or value in connection with that sad occurrence at this late day, yet that was the principal object in mind in a recent visit to this interesting valley; combining research study with vacation pleasure, hoping thereby to secure sufficient information from the resident patriarch of the village—himself a descendant of early Waimeans—that would identify the landing place of the watering party, and the locality of the murderous attack, and if the data obtained may be relied upon—and there is no reason why our informant should be misleading—the effort was not wholly void of success.

A white sand beach, noted for its white and speckled scallop sea shells, (*Pecten russatus*(?) Reeve,) found at certain seasons of the year, now closes entirely the mouth of the stream as it has for a number of years past, except when heavy freshets force a temporary outlet for its pent up waters. In ancient times it is said, there was open water from the sea shore to near the fork of the valley, so that canoes came up this waterway freely, and it was up this inlet that the boat of the *Dædalus* coursed, said our informant, and landed its party near the western branch stream at a place known as Kaiamoana. A short distance inland

from this landing place, at the base of Kaluahole, a bluff on the western or Waialua side of the valley, was pointed out as the spot where the attack on the officers and two seamen occurred and one sailor killed, while still further inland, about abreast of Kalihee, the central bluff dividing the valley, at a place called Kapa'u, was where the officers were murdered, from whence their bodies were borne to a distant heiau, according to native authorities.

Some readers may be unaware of the fact that on the top of Keanaloa, the eastern bluff of the valley overlooking the narrow stretch of lowland shore, is located the ruins of one of the celebrated heiaus of this island, known as Puu-o-Mahuka, the dedicatory fires of which are said to have been felt on distant Kauai. This temple is further said to be identified with Kaopulupulu, the martyr Kahuna of prophetic power, whose death at the behest of Kahahana the Moi of Oahu was the cause of his overthrow by Kahekili the Moi of Maui in 1782.³ It seems most probable that this was the distant heiau to which the bodies of the murdered officers were borne, rather than to Mokuleia, some twelve miles to the westward, as erroneously stated by one writer, for no evidence can be found of any ancient temple in that part of the district. There were three, if not more, within this distance, one of which was near the western point of Waimea, but all lacked the renown of Puu-o-Mahuku and, furthermore, this latter was within reach of the avenging guns of the *Dædalus*.

But this once populous and fruitful valley has suffered many changes with the march of time, and fatalists would say that retribution had pursued Waimea with unrelenting hand. The denuding of its upland forest has rendered its valley slopes susceptible to frequent damage by floods in the winter seasons, and the tremendous freshets of 1898 put an end to the agricultural enterprise of its remnant of people by washing out to sea the growing taro from terraced banks; the coffee, orange and other fruit trees planted along its slopes, and filling up its taro patches and the bed of its streams with debris, rocks and boulders, several

³ The Polynesian Race, by Abraham Fornander; London, 1880, Vol. II, p. 222.

feet deep. As though this was not misfortune enough, houses and other property were also swept away and three lives lost in the effort to rescue personal effects from the mad-rushing torrent which also carried away the government bridge and seriously damaged that of the Railway Company. Evidences of this devastation still exist, and will remain for many years to come.

The remaining residents in the village, which is near the shore, are few, comprising mostly Japanese, with a few Hawaiians, whose principal occupation is that of fishing. On the east side of the valley, above the bridge, an attempt at sweet potato cultivation is in progress, but nothing further in agriculture is to be seen. The gathering of sea shells by the native women and children in the dazzling glare of their white sand beach, and making them up into hat bands and belts, for souvenirs, helps them to eke out a precarious living.

THE HEIAU (TEMPLE) OF KUPOPOLO.

AND INCIDENTALLY OTHERS.

A SUBSEQUENT visit to the locality of the preceding narrative for a few corroborative particulars, afforded an opportunity that was readily availed of to investigate certain points set forth in the account of the Hawaiian prophesy, "The land is given to the sea," as published in the *Annual* for 1904, more particularly the heiau (temple) of Kohokuwelowelo for priests only, at Punanue, where Kaopulupulu, the famous priest, and his son, is said to have made a short stay in crossing through Waialua.

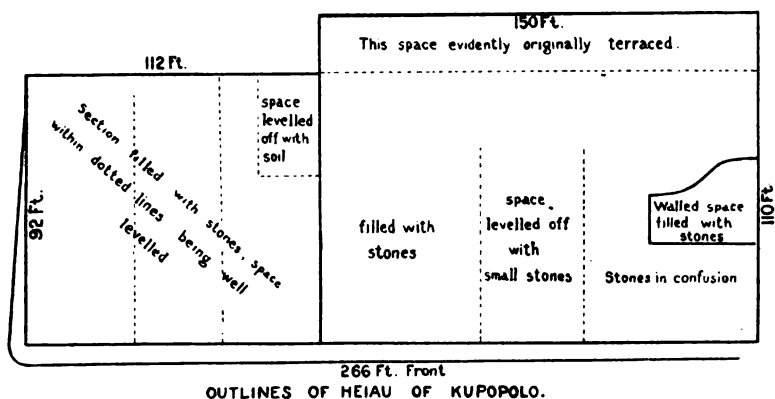
Contrary to the maxim of "never expose your ignorance," we have ever been ready to admit ours for the sake of gaining knowledge, hence, never having heard of a Hawaiian temple devoted solely to, or for, the priests, the occasion was seized for the enlightenment of our ignorant mind on the antiquities and folk lore of the land we live in. But we were doomed to disappoint-

ment and will have to grope on in our ignorance still, for though the location was readily found—situate about midway between Haleiwa and Waimea,—no clue to the temple named was discovered. The many stone enclosures of Punanue gave evidence in early times of a populous village, confirming old residents' statements, and was not, nor ever had been, a heiau land, for temples were not erected amid habitations but rather apart from them. Furthermore, the myth character of this portion of the tradition was deemed conclusive upon learning that the name given as that of the temple for priests only is said to have been that of Kaopulupulu's own place at Waimea.

The unraveling of this myth of the temple of Kahokuwelowelo led, however, to the important discovery of one called Kupopolo, situated near the western point of Waimea, close to the Waialua boundary. It is some four miles distant from the Haleiwa hotel, on the upper side of the road, and in plain view, and had doubtless been looked upon by all visitors and many residents of the district as an old cattle pen, but which upon investigation was readily seen to be a construction of far different character.

Upon learning of its location, enquiry at the hotel elicited nothing relative to it, but with the readiness of an enthusiast in discoveries, Manager Bidgood joined in the trip of search and investigation, that he might have personal knowledge thereof for the benefit of future guests of his hostelry, and materially aided the expedition by taking the measurements for the accompanying sketch.

With a native guide impressed into service from a party of fishermen met with along the shore, we had no difficulty in finding the object of our search, but of any particulars concerning it he knew absolutely nothing, though belonging to Waimea, except that the stones of the structure was said, traditionally, to have been brought by the Menehunes from Kaena point, a distance of fifteen miles,—evidently another myth.



This heiau of Kupopolo stands out clear on gently sloping pasture land some three hundred yards from the road, and about midway between it and the base of the bluff terminating the high land cane culture of the Waialua Agricultural Co. not far from the turn into Waimea valley. Its front wall stands from six to eight feet high, according to the slope of the land, and runs back to about four feet high in the rear. It lies parallel with the shore line, northeast and southwest; its front wall measuring 266 feet along the base. It is composed of two separate enclosures, the northern one being 112 by 92 feet and the southern one adjoining, 150 by 110 feet, the two embracing an area of about four-sevenths of an acre. The front wall seems to be of double construction, a base some four feet high running its entire length and around its northern end, above, and about three feet within which rise the walls proper.

For its age and exposed situation it was found to be fairly well preserved, and upon climbing its walls, built up of compact¹ laid lava stones, evidently from the vicinity, we were impressed with its size as exceeding that of Puukohola, the famous heiau at Kawaihae, Hawaii, constructed just at the completion of Kamehameha's conquest of that island, the dimensions of

¹ Hawaiians never used plaster or other adhesive substance in their stone structures.

which as described by Ellis, in his "Tour of Hawaii," are given as 224 feet long by 100 feet wide.

As seen in the plan a division wall—which is higher than the outer walls—divides the temple into two sections, northern and southern, the former of which is nearly square. Both sections are filled to the height of the main or outer walls with rounded unbroken stones, the central third part of each being well leveled off with small flat and broken stones filling in the chinks, while those in the ends of each division were in a loose and confused state, especially the southern end, as was also a curved walled-in enclosure on the southern end, thirty feet from the front wall. This latter, with a number of uniform piles of stones in this larger division, was quite noticeable and may have much significance, though it may possibly be the result of relic searching in days long past, or it may have been an attempt at its demolition following an edict of Kaahumanu's in 1822, when she burned all the idols found on Hawaii, followed by the destruction of some temples.

Our informant said it was done by road builders, many years ago, who broke away the steps which formerly existed at the southwest end, and, with many stones from the inner part of the heiau, were taken to construct that portion of the road bed that runs along the beach, because they were handy together. But a casual glance along the neighboring shore indicates that ample material for such purpose exists nearer at hand, and a like condition doubtless existed then. Still, if his statement is correct, then it is not improbable that the outer walls have been reduced from their original height, probably that of the division wall.

From examination the only way of approach seems to be in a tumbled down outer wall rounding the northern corner as being probably the entry-way for the priests into the inner temple, which was this northern section, for at the southwest corner of this division is a small space leveled off with soil, of a size for, and was most likely to have been the place, where the priest's house for consulting his oracles, stood.

The curved section near the middle southern wall of the larger division already mentioned may have been the main

entrance leading to the outer portion of the temple, which would account for its departure from the right angle form of all other parts of the structure. The rest of this division is open ground, with the appearance of a rear terrace running its entire length, where probably stood huts for the priest and his assistants, as required in some heiau enclosures.²

So far as can be learned there is little similarity in the ground plan of the remaining heiaus known to exist throughout the islands, and this confirms the statement of Kamakau, the historian, "that they varied in shape, being square, oblong, and round in form; of no uniform plan, save those constructed by an ancient priest named Moi, but each according to the design of the kaula, or prophets."

No little interest has been awakened by the rediscovery of this apparently overlooked and forgotten heiau, and for various reasons. In the first place its fair condition and large size gives even now, a faint idea of its ancient purpose; second, it would likely be the easiest of restoration to its probable original plan with least expense, and third, its location of easy access, by rail, affords an object lesson already too rare to visitors and residents interested in the study of Hawaiian antiquities.

In the latter part of the reign of Kalakaua an act was passed "to authorize the Hawaiian government to acquire and preserve the ancient heiaus and puuhonuas, or the sites or remains thereof," but nothing, so far, has come of it, not even the compilation of a list of those remaining throughout the islands.

As a public attraction and Promotion Committee asset the directors of the Oahu Railway & Land Co. and the Haleiwa hotel will no doubt welcome any scientific aid toward its restoration. To this end a representative committee of the Hawaiian Historical Society, with others, were invited to visit the ruins some weeks later, conducted by Manager F. C. Smith, of the Oahu Railway, and Secretary E. M. Boyd, of the Hawaii Promotion Committee, and two interesting hours were spent in examining its condition and peculiar features. As a result the consensus of opinion fa-

² *Legends and Myths of Hawaii*, page 45.

vored its preservation by careful repair of all its broken walls to their first state, but as to its restoration there was too little in evidence to convey a clear idea of what the original detail plan of the heiau had been to advise such a step at this time. Its preservation will pave the way therefor whenever further study and insight in Hawaiian temple structures of this class, or rank, may direct. Such a course would not detract from its historic value; in fact a deeper interest ever prevails over well kept ruins than can be maintained on false restorations.

Waialua possesses another ruined heiau, named Onehane, situated on the slope of one of the spurs of Kaala, directly back of the Waialua Agricultural Co.'s mill, but so dilapidated and overgrown with lantana as renders it difficult to obtain a fair idea of its size.

On the summit of the ridge overlooking Kaena point is still another heiau, called Kuokala, said by the natives of Waianae to have been built by the migrates from Kauai when they first peopled this Island of Oahu.

KAALA AND KAAIALII.

A Legend of Lanai.

Condensed from the *Nu Hou* version of 1873.

BORDERING upon the land of Kealia, on the southwest coast of Lanai, where was a pahonua, or place of refuge, are the remains of Kaunolu; an ancient heiau, or temple. Its ruins lie within the mouth of a deep ravine, whose extending banks run out into the sea and form a bold, bluff-bound bay. On the top of the western bank there is a stone-paved platform, called the kuaha. Outside of this, and separated by a narrow alley way, there runs a broad high wall, which quite encircles the kuaha. Other walls and structures lead down the bank, and the slope is terraced and paved down to the tide-worn stones of the ever sounding shore.

At the beach there is a break; a great block of the bluff has been rent away by some earth shake, and stands out like a lone tower, divided from the main by a gulf of the sea. Its high walls beetle from their tops, upon which neither man nor goat can climb. But you can behold on the flat summit of this islet bluff portions of ancient work, of altars and walls, and no doubt a part of the mainland temple, to which this fragment once was joined. But man can visit this lone tower's top no more, and his feet can never climb its overhanging walls.

Inland from the temple there are many remains of the huts of the people of the past. The stone foundations, the enclosures for swine, the round earth ovens, and other traces of a throng of people, cover many acres of beach and hill-side. This was a town, famed as an abode of gods and a refuge for those who fled for their lives; but it drew its people mainly through the fame of its fishing ground, which swarmed with the varied life of the Hawaiian seas.

To this famed fishing ground came the great hero of Hawaii, to tax the deep, when he had subdued this and the other isles. He came with his fleets of war canoes; with his faithful koas or fighting men; with his chiefs, and priests, and women, and their trains. He had a house here. Upon the craggy bluff that forms the eastern bank of the bay there is a lonely pa, or wall, and stones of an ancient fort, overlooking the temple, town and bay.

Kamehameha came to Kealia for sport rather than for worship. Who so loved to throw the maika ball, or hurl the spear, or thrust aside the many javelins flung at his naked chest, as the chief of Kohala? He rode gladly on the crests of the surf waves. He delighted to drive his canoe alone out into the storm. He fought with the monsters of the deep, as well as with men. He captured the great shark that abounds in the bay; and he would clutch in the fearful grip of his hands the deadly eel or snake of these seas, the terror of fish and men.

When this warrior king came to Kaunolu, the islanders

thronged to the shore to pay homage to the great chief, and to lay at the feet of their sovereign, as was their wont, the products of the isle: the taro, the yam, the pala, the cocoanut, ohelo, banana and sweet potato. They piled up a mound of food before the door of the king's pakui, along with a clamorous multitude of fat poi-fed dogs, and of fathom long swine.

Besides this tribute of the men, the workers of the land, the women filled the air with the sweet odors of their floral offerings. The maidens were twined from head to waist with leis or wreathes of the nauu, which is Lanai's own lovely jessamine—a rare gardenia, whose sweet aroma ladens the breeze, and leads you to the bush when seeking it afar off. These garlands were fastened to the plaited pili thatch of the king's pakui; they were placed on the necks of the young warriors, who stood around the chief; and around his royal brows they twined an odorous crown of maile.

The brightest of the girlish throng who stood before the dread "Lord of the Isles" was Kaala, or Sweet Scented, whose fifteen suns had just burnished her sweet brown face with a soft golden gloss; and her large, round, tender eyes knew yet no wilting fires. Her neck and arms, and all of her young body not covered by the leafy pa-u, was tinted with a soft sheen like unto a rising moon. Her skin glowed with the glory of youth, and mingled its delicate odor of health with the blooms of the groves, so that the perfume of her presence received fittingly the name of Fragrance.

In those rude days the island race was sound and clean. The supple round limbs were made bright and strong by the constant bath and the temperate breeze. They were not cumbered with clothing; they wore no long, sweating gowns, but their smooth shining skins reflected back their sun, which gave them such a rich and dusky charm.

Perhaps such a race cannot long wear all our gear and live. They are best clothed with sea foam, or with the garlands of their groves. How sweetly blend the brown and green; and when young, soft, amber-tinted cheeks, glowing with the crim-

son tide beneath, are wreathed with the odorous evergreens of the isles, you see the poesy of our kind, and the sweet, wild grace that dwelt in the Eden Paradise.

The sweet Kaala stood mindless of harm, as the playful breeze rustled the long blades of the la-i leaf*, hanging like a bundle of green swords from her waist; and as they twirled and fluttered in the air, revealed the soft, rounded form, whose charm filled the eye and heart of one who stood among the braves of the great chief—the heart of the stout young warrior Kaaialii.

This youth had raged in the slaughter of Maunalei, Lanai's last bloody fight. With his long reaching spear, wielded with sinewy arms, he urged the flying foe to the top of a fearful cliff, and mocking the cries of a huddled crowd of panic-scared men, he drove them with thrusts and shouts till they leaped like frightened sheep into the jaws of the deep, dark chasm, and their torn corpses strewn the jagged stones below.

Kaaialii, like many a butcher of his kind, was comely to see. With the lion's heart, he had the lion's tawny hue. A swart grace beamed beneath his curling brows. He had the small, firm hand to throttle or caress, and eyes full of fire for hate or love; and love's flame now lit the face of the hero of the bloody leap, and to his great chief he said: "Oh, King of all the isles, let this sweet flower be mine, rather than the valley thou gavest me for my domain."

Said Kamehameha: You shall plant the Lanai jasmin in the valley I gave you in Kohala. But there is another who claims our daughter, who is the stout bone-breaker, the scarred Mailou. My spearman of Maunalei can have no fear; and you shall wrestle with him; and let the one, whose arms can clasp the girl after the fight, carry her to his house, where one kapa shall cover the two.

The poor flower, the careless gift of savage power, held up her clasped hands with the frightened gesture at the dread name of the breaker of bones; for she had heard how he had sucked

**Dracaena terminalis*.

the breath of many a dainty bloom like her, then crunched the wilted blossom with sinews of hate, and flung it to the sharks.

And the Lanai maiden loved the young chief of Hawaii. He had indeed pierced her people, but only the tender darts of his eyes had wounded her. Turning to him, she looked her savage, quick, young love, and said: "Oh, Kaaialii! may thy grip be as sure as thy thrust. Save me from the bloody virgin eater, and I will catch the squid and beat the kapa for thee all my days."

And now the games went on. The king sat under the shade of a leafy kou, the royal tree of the olden time, which has faded away with the chiefs it once did shelter. On the smooth shell floor covered with the hala mat, stood the bare limbed braves, stripped to the malo, who with hot eyes of hate shot out their rage of lust and blood, and stretched out their strangling arms.

They stood, beating with heavy fist their broad glossy chests of bronze, and grinning face to face, they glowered their savage wish to kill. Then, with right foot advanced, and right arm uplifted, they pause to shout their gage of battle, and tell to each, how they would maim and tear, and kill, and give each others' flesh for food to some beastly maw.

And now both drawing near to each, with arms uplifted, and outspread palms with sinewy play, like nervy claws trying to clutch or grip, they seek a chance for a deadly clinch, and swift the scarred child strangler has sprung with his right to the young spearman's throat, but he as quickly hooks the lunging arm within the crook of his, and with quick, sledge-like blow breaks the shoulder arm bone.

With fury the baffled bone-breaker grips with the uncrippled hand; but now two stout young arms, tense with rage, soon twist and break the one unaided limb. Then with limp arms the beaten brute turns to flee, but swift hate is upon him, and clutches him by the throat, and pressing him down, the hero of Kaala holds his knee to the hapless wretch's back, and with knee bored into the backward bended spine, he strains and jerks till the jointed bones snap and break, and the dread throttler of girls and babes lies prone on the mat, a broken and bloody corse.

Good! cries the king. Our son has the strength of Kanekoa. Now let our daughter soothe the limbs of her lover. Let her stroke his skin, press his joints and knead his back with the loving grip and touch of the lomilomi. We will have a great bake with the hula and the song; and when the feast is over, then shall they be one.

A line of women squat down. They crone their wild refrain, praising the one who wins in strife and love. They seize in their right hand the hula gourd, clattering with pebbles inside. They whirl it aloft, they shake, they swing, they strike their palms, they thump the mat; and now with supple joints they twirl their loins, and with heave and twist, and with swing and song, the savage dance goes on.

Kaala stood up with the maiden throng, the tender, guarded gifts of kings. They twined their wreaths, they swayed, and posed their shining arms; and flapping with their hands their leafy skirts, revealed their rounded limbs. This fires the gaze of men, and the hero of the day with flaming eyes, springs and clasps his love, crying as he bears her away: "Thou shalt dance in my hut in Kohala for me alone, forever."

At this, a stout yet grizzled man of the isle, lifts up his voice and wails: "Kaala, my child, is gone. Who shall soothe my limbs when I return from spearing the ohua? And who shall feed me with taro and breadfruit like the chief of Olowalu, when I have no daughter to give away? I must hide from the chief or I die." And thus wailed out Opunui, the father of Kaala.

But a fierce hate stirred the heart of the man. His friend was driven over the cliff at Maunalei, and he (Opunui) had only lived by crawling at the feet of the slayer. He hid his hate, and planned to save his girl and balk the killer of his people. He said in his heart, "I will hide her in the sea, and none but the fish gods and I shall know where the ever sounding surf surges over Kaala."

Now in the morn, when the girl with ruddy brown cheeks, and glowing with the brightening dawn of love, stood in the

doorway of the lodge of her lord, and her face was sparkling with the sheen from the sun, her sire in humble guise stood forth and said: "My child, your mother at Mahanā is dying. Pray you, my lord, your love, that you may see her once more before his canoe shall bear you to his great land.

Alas! said the tender child. "Since when is Kalani ill? I shall carry to her this large sweet fish speared by my lord; and when I have rubbed her aching limbs, she will be well again with the love touch of her child. Yes, my lord will let me go. Will you not, oh, Kaaialii; will you not let me go to give my mother a last embrace, and I shall be back again before the moon has twice spanned the bay."

The hero clasped his young love with one stout twining arm, and gazing into her eyes, he with a caressing hand put back from her brow her shining hair, and thus to his heart's life he spoke: "Oh, my sweet flower, how shall I live without thee, even for this day's march of the sun; for thou art my very breath, and I shall pant and die like a stranded fish without thee."

But, no, let me not say so, Kaaialii is a chief that has fought men and sharks; and he must not speak like a girl. He too loves his mother, who looks for him in the valley of Kohala; and shall he deny thy mother, to look her last upon the sweet face, and the tender limbs, that she fed and reared for him. Go, my Kaala. But thy chief will sit and watch with a hungering heart, "till thou come back to his arms again."

And the pretty jasmin twined her arms around his neck, and laying her cheek upon his breast said with upturned tender glances: "Oh, my chief, who gave me life and sweet joy; thy breath is my breath, thy eyes are my sweetest sight, thy breast is my only resting place, and when I go away, I shall all the way look back to thee, and go slowly with a backward turned heart; but when I return to thee, I shall have wings to bear me to my lord."

"Yes, my own bird," said Kaaialii, "thou must fly, but fly swiftly in thy going as well as in thy coming; for both ways

thou fliest to me. When thou are gone I shall spear the tender ohua fish, I shall bake the yam and banana, and I will fill my calabash with the sweet water, to feed thee my heart when thou shalt come; and thou shalt feed me with thy loving eyes."

"Here, Opunui!" cried Kaaialii, "take thy child. Thou gavest life to her, but now she gives life to me. Bring her back all well, ere the sun has twice risen. If she come not soon, I shall die; but I should slay thee before I died; therefore, oh, Opunui, hasten thy going and thy coming, and bring back my life and love to me."

And now the stern hero unclasps the weeping girl. His eye was calm, but his shut lips showed the work within of a strong and tender heart of love. He felt the ache of a larger woe, than this short parting. He pressed the little head between his palms, he kissed the sobbing lips, again and again; he gave one strong clasp, heart to heart, and then quickly strode away.

As Kaala tripped along the stony up-hill path, she glanced backward on her way, to get glimpses of him she loved, and she beheld her chief standing on the topmost rock of the great bluff overhanging the sea. And still as she went and looked, still there he stood; and when on the top of the ridge and about to descend into the great valley, she turned to look her last, and still she saw her loving lord looking up to her.

The silent sire and the weeping child soon trod the round green vale of Palawai. She heeds not now to pluck, as was her wont, the flowers in her path; but thinks how she shall stop awhile, as she comes back to twine a wreath for her dear lord's neck. And thus this sad young love trips along with innocent hope by the moody Opunui's side.

They pass through the groves of Kalulu and Kumoku, and now the man swerves from the path leading to Mahana and turns his face again seaward. At this the sad and silent child looks up into the face of her grim and sullen sire and says: "Oh, father, we shall not find mother on this path, but we shall lose our way and come to the sea once more."

"And thy mother is by the sea, by the bay of Kaumalapau.

There she gathers limpets on the rocks. She has dried a large squid for thee. She has pounded some taro and filled her calabash with poi, and would feed thee once more. She is not sick; but had I said she was well, thy lord would not have let thee go; but now thou art on the way to sleep with thy mother by the sea."

The poor weary girl now trudged on with a doubting heart. She glanced sadly at her dread sire's moody eye. Silent and sore she trod the stoney path leading down to the shore, and when she came to the beach with nought in view but the rocks and sea, she said with a bursting heart: "Oh, my father, is the shark to be my mother, and I to never see my dear chief any more!"

"Hear the truth," cried Opunui, "thy home for a time is indeed in the sea, and the shark shall be thy mate, but he shall not harm thee. Thou goest down where the sea-god lives, and he shall tell thee that the accursed chief of the bloody leap shall not carry away any daughter of Lanai. When Kaaialii has sailed for Kohala then shall the chief of Olowalu come and bring thee to earth again."

As the fierce sire spoke, he seized the hand of Kaala, and unheeding her sobs and cries, led her along the rugged shore to a point eastward of the bay where the beating sea makes the rocky shore tremble beneath your feet. Here was a boiling gulf, a fret and foam of the sea, a roar of waters, and a mighty jet of brine and spray from a spouting cave whose mouth lay deep beneath the battling tide.

See yon advancing billow! The south wind sends it surging along. It rears its combing, whitening crest, and with mighty, swift rushing volume of angry green sea, it strikes the mouth of the cave; it drives and packs the pent up air within, and now the tightened wind rebounds, and driving back the ramming sea, bursts forth with a roar as the huge spout of sea leaps upward to the sky, and then comes curving down in gentle silver spray.

The fearful child now clasps the knees of her savage sire.

"Not there, oh, father," she sobbed and wailed. "The sea snake (the puhi) has his home in the cave, and he will bite and tear me, and ere I die, the crawling crabs will creep over me and pick out my weeping eyes. Alas, oh father, better give me to the shark, and then my cry and moan will not hurt thine ear."

Opunui clasps the slender girl with one sinewy arm, and with a bound he leaps into the frothed and fretted pool below. Downwards with a dolphin's ease he moves, and with his free arm beating back the brine, he moves along the ocean bed into the sea cave's jagged jaws, and now stemming with stiffened sinew the wind driven tide, he swims onward till he strikes a sunless beach and then stands up in breathing air inside the cave, whose mouth is beneath the sea.

Here is a broad dry space with a lofty, salt icicled roof. The green translucent sea as it rolled back and forth at their feet, gave to their brown faces a ghastly white glare. The scavenger crabs scrambled away over the dank and dripping stones, and the loathsome biting eel, slowly reached out its well toothed, wide gaping jaw to tear the tender feet that roused it from its horrid lair, where the dread sea god dwelt.

The poor hapless girl! sank down upon this gloomy shore and cried, clinging to the kanaka's knee—"Oh, father, beat out my brains with this jagged stone, and do not let the eel tear me and twine around my neck, and trail with a loathsome, slimy, creeping crawl over my body before I die. Oh! the crabs will pick and tear me before my breath is gone."

"Listen," said Opunui, "thou shalt go back with me to the warm sunny air. Thou shalt tread again the sweet smelling flowery vale of Palawai, and twine thy neck with wreaths of scented jasmin, if thou wilt go with me to the house of the chief of Olowalu and there let thy bloody lord behold thee wanton with thy love in another chief's arms."

"Never," shouted the lover of Kaaialii, "never will I meet any clasp of love but that of my own chief. If I cannot lay my head again upon his breast, I will lay it in death upon

these cold stones. If his arm shall never again draw me to his heart, then let the eel twine my neck and let him tear away my cheeks rather than another besides my dear lord, shall press my face."

"Then let the eel be thy mate," cried Opunui, as he roughly unclasped the tender arms twined around his knees; "until the chief of Olowalu comes to seize thee, and carry thee to his house in the hills of Maui. Seek not to leave the cave. Thou knowest that with thy weak arms, thou wilt tear thyself against the jagged rocks in trying to swim through the swift flowing channel. Stay till I send for thee, and live." Then dashing out into the foaming gulf with mighty buffeting arms he soon reached the upper air.

And Kaaialii stood upon the bluff, looking up to the hill side path by which his love had gone, long after her form was lost to view in the interior vales. And after slight sleep upon his mat, then walking by the shore that night, he came at dawn and climbed the bluff again to watch his love come down the hill. And as he gazed he saw a leafy skirt flutter in the wind, and his heart fluttered to clasp his girl; but as a curly brow drew near, his soul sank to see it was not his love, but her friend Ua* with some sad news upon her face.

With hot haste and eager asking eyes does the love lorn chief meet the maiden messenger, and cries: "Why does Kaala delay in the valley? Has she twined wreaths for another's neck for me to break? Has a wild hog torn her? or has the anaana prayer of death struck her heart, and she lies cold on the sod of Mahana? Speak quickly, for thy face kills me, oh, Ua!"

"Not thus, my Lord," said the weeping girl, as the soft shower fell from Ua's sweet eyes. "Thy love is not in the valley; and she has not reached the hut of her mother Kalani. But kanakas saw from the hills of Kalulu her father lead her through the forest of Kumoku, since then our Kaala has not been seen, and I fear has met some fate that is to thwart thy love."

"Kaala lost! The blood of my heart is gone!" He hears no more! The fierce chief hot with baffled passion, strikes madly at the air, and dashes away, onward up the stony hill,—and upward with his stout young savage thews, he bounds along without halt or slack of speed till he reaches the valley's rim, then rushes down its slopes.

He courses over its bright green plains. He sees in the dust of a path some prints that must be those of the dear feet he follows now. His heart feels a fresh bound; he feels neither strain of limb, nor scant of breath, and searching as he runs he descries before him in the plain the fraudulent sire alone.

"Opunui," he cries, "give me Kaala or thy life!" The stout grey kanaka looks to see the face of flame, and the outstretched arms; and stops not to try the strength of his own limbs; or to stay for any parley; but flies across the valley, along the very path by which the fierce lover came; and with fear to spur him on he keeps well before his well blown foe.

But Kaaialii is now a god; he runs with new strung limbs, and presses hard this fresh footed runner of many a race. They are within two spear's length of each other's grip upon the rim of the vale; and hot with haste the one and fear the other they dash along the rugged path of Kealia, and rush downward to the sea.

They bound o'er the fearful path of clinkers. Their torn feet heed not the pointed stones. The elder seeks the shelter of the tabu; and now both roused by the outcries of a crowd that swarm on the bluffs around, they put forth their remaining strength and strive who shall gain first the entrance to the sacred wall of refuge.

For this the hunted sire strains his fast failing nerve; and the youth with a shout quickens his still tense limbs. He is within a spear's length; he stretches out his arms. Ha, old man! he has thy throat within his grip. But no, the greased neck slips the grasp; the wretch leaps for his dear life, he gains the sacred wall, he bounds inside, and the furious foe is stopped by the staves of priests.

The baffled chief lies prone in the dust, and curses the gods and the sacred taboo. After a time he is led away to his hut by friends; and then the soothing hands of Ua rub and knead the soreness out of his limbs. And when she has set the calabash of poi before him along with the relishing dry squid; and he has filled himself and is strong again, he will not heed any entreaty of chief or friends; not even the carressing lures of Ua who loves him; but he says, "I will go and seek Kaala; and if I find her not, I die."

Again the love lorn chief seeks the inland. He shouts the name of his lost love in the groves of Kumoku, among the thickets of Kaa, and throughout the forest of Mahana. Then he roams throughout the cloud canopied valley of Palawai; he searches among the wooded canyons of Kalulu, and he wakes the echoes with the name of Kaala in the gorge of the great ravine of Maunalei.

He follows this high walled barranca over its richly flowered and shaded floor; and also along by the winding stream, until he reaches its source, an abrupt wall of stone, one hundred feet high, and forming the head of the ravine. From the face of this steep, towering rock, there exudes a sweet clear rain, a thousand trickling rills of rock filtered water leaping from points of fern and moss, and filling up an ice cold pool below, at which our weary chief gladly slaked his thirst.

The hero now clammers the steep walls of the gorge impassable to the steps of men in these days; but he climbs with toes thrust in crannies of rock, or resting on short juts and points of rock; and he pulls himself upward by grasping at out cropping bushes and strong tufts of fern. And thus with stout sinew and bold nerve the fearless spearman reaches the upper land from whence he had, in his day of devouring rage, hurled and driven headlong the panic stricken foe.

And now he runs on over the lands of Paomai, through the wooded dells of the gorge of Kaiholena and onward across Kaunolu and Kalulu, until he reaches the head spring of sacred Kealia called Waiakekua; and here he gathered bananas

and ohelo berries; and as he stayed his hunger with the pleasant wild fruit, he beheld a white haired priest of Kaunolu, bearing a calabash of water.

The ancient Papalua feared the stalwart chief, because he was not upon his own sacred ground, under the safe wing of the taboo; and therefore he bowed low and clasped the stout knees, and offered the water to slake the thirst of the sorrowing chief. But Kaaialii cried out, "I thirst not for water, but for the sight of my love. Tell me where she is hid, and I will bring thee hogs and men for the gods." And to this the glad priest replied:

"Son of the stout spear! I know thou seekest the sweet Flower of Palawai; and no man but her sire has seen her resting place; but I know that thou seekest in vain in the groves, and in the ravines, and in this mountain. Opunui is a great diver and has his dens in the sea. He leaves the shore when no one follows, and he sleeps with the fish gods, and thou wilt find thy love in some cave of the rock bound southern shore."

The chief quickly turns his face again seaward. He descends the deep shaded pathway of the ravine of Kaunolu. He winds his way through shaded thickets of ohia, sandalwood, the yellow mamani, the shrub violet, and fragrant nauu. He halted not as he reached the plain of Palawai, though the ever overhanging canopy of cloud that shades this valley of the mountain cooled his weary feet. These upper lands were still, and no voice was heard by the pili grass huts, and the maika balls and the wickets of the bowling alley of Palawai stood untouched, because all the people were with the great chief by the shore of Kaunolu; and Kaaialii thought that he trod the flowery pathway of the still valley alone.

But there was one who, in soothing his strained limbs after he fell by the gateway of the temple, had planted strong love in her own heart; and she, Ua, with her lithe young limbs, had followed this sorrowing lord through all his weary tramp, even through the gorges, and over the ramparts of the hills, and she

was near the sad way-worn chief when he reached the southern shore.

The weary hero only stayed his steps when he reached the brow of the great bluff of Palikaholo. The sea broke many hundred feet below where he stood. The gulls and screaming boson birds sailed in mid air between his perch and the green waves. He looked up the coast to his right and saw the lofty, wondrous sea columns of Honopu. He looked to the left and beheld the crags of Kalulu, but nowhere could he see any sign which should tell him where his love was hid away.

His strong wild nature was touched by the distant sob and moan of the surf. It sang a song for his sad savage soul. It roused up before his eyes, other eyes, and lips and cheeks, and clasps of tender arms. His own sinewy ones he now stretched out wildly in the mocking air. He groaned, and sobbed, and beat his breast as he cried out, "Kaala, oh, Kaala! Where art thou? Dost thou sleep with the fish gods, or must I go to join thee in the great shark's maw?"

As the sad hero thought of this dread devourer of many a tender child of the isles, he hid his face with his hands,—looking with self torture upon the image of his soft young love, crunched, bloody and shrieking in the jaws of the horrid god of the Hawaiian seas; and as he thought and waked up in his heart the memories of his love, he felt that he must seek her even in her gory grave in the sea.

Then he looks forth again, and as he gazes down by the shore his eyes rest upon the spray of the blowing cave near Kaumalapau. It leaps high with the swell which the south wind sends. The white mist gleams in the sun. Shifting forms and shades are seen in the varied play of the up leaping cloud. And as with fevered soul he glances, he sees a form spring up in the ever bounding spray.

He sees with his burning eyes the lines of the sweet form that twines with tender touch around his soul. He sees the waving hair, that mingles on his neck with his own swart curls. He sees,—he thinks he sees, in the leap and play of sun

tinted spray, his love, his lost Kaala; and with hot foot he rushes downward to the shore.

He stands upon the point of rock whence Opunui sprang. He feels the throb beneath his feet of the beating, bounding tide. He sees the fret and foam of the surging gulf below; the leaping spray, and is wetted by the shore driven mist. He sees all of this wild working water, but he does not see Kaala.

And yet he peers into this mad deep for her he seeks. The form that he has seen still leads him on. He will brave the sea god's wrath; and he fain would cool his brow of flame in the briny bath. He thinks he hears a voice sounding down within his soul; and cries, "Where art thou, oh, Kaala? I come, I come!" and as he cries, he springs into the white foaming surge of this ever fretted sea.

And one was near as the hero sprang; even Ua with the clustering curls. She loved the chief, she did hope that when his steps were stayed by the sea, and he had mingled his moan with the wild waters' wail, that he would turn once more to the inland groves, where she would twine him wreaths, and soothe his limbs, and rest his head upon her knees; but he has leaped for death, he comes up no more; and Ua wailed for Kaaialii; and as the chief rose no more from out the lashed and lathered sea, she cried out, "Auwe ka make!" Alas he is dead, and thus wailing and crying out, and tearing her hair, she ran back over the bluffs, and ran down the shore to the tabooed ground of Kealia, and wailing ever, flung herself at the feet of Kamehameha.

The king was grieved to hear from Ua of the loss of his young chief. But the priest Papalua standing near, said: "Oh, Chief of Heaven, and of all the Iles; there where Kaaialii has leaped is the sea den of Opunui, and as thy brave spear man can follow the turtle to his deep sea nest, he will see the mouth of the cave, and in it I think, he will find his lost love, Kaala the flower of Palawai."

At this Ua roused up. She called to her brother Keawe, and laying hold on him, pulled him towards the shore, crying out: "To thy canoe, quick, I will help thee to paddle to Kaumala-

pau." For thus she could reach the cave, sooner than by the way of the bluffs. And the great chief also following, sprang into his swiftest canoe, and helping as was his wont, plunged his blade deep into the swelling tide, and bounded along by the frowning shore of Kumoku.

When Kaaialii plunged beneath the surging waters, he became at once, the searching diver of the Hawaiian seas; and as his keen eye peered throughout the depths, he saw the portals of the ocean cave into which poured the charging main. He, then stemming with easy play of his well knit limbs, the suck and rush of the sea, shot through the current of the gorge; and soon stood up upon the sunless strand.

At first he saw not, but his ears took in at once a sad and piteous moan, a sweet, sad moan for his hungry ear, of the voice of her he sought. And there upon the cold, dank, dismal floor he could dimly see his bleeding, dying love; and quickly clasping and soothing her, lifted her up to bear her to the upper air; but the moans of his poor weak Kaala told him she would be strangled in bearing her through the sea.

And as he sat down, and held her in his arms, she feebly spoke: "Oh, my chief, I can die now. I feared that the fish gods would take me, and I should never see thee more. The eel bit me, and the crabs crawled over me, and when I dared the sea to go and seek thee, my weak arms could not fight the tide; I was torn against the jaws of the cave, and this and the fear of the gods have so hurt me, that I must die."

"Not so my love," said the sad and tearful chief. "I am with thee now. I give thee the warmth of my heart. Feel my life in thine. Live, oh, my Kaala, for me. Come, rest and be calm, and when thou canst hold thy breath I will take thee to the sweet air again, and to thy valley, where thou shalt twine wreaths for me." And thus with fond words and caress he sought to soothe his love.

But the poor girl still bled, as she moaned; and with fainter voice she said: "No, my chief, I shall never twine a wreath, but only my arms once more around thy neck." And feebly clasping him, she said in sad, sobbing, fainting tones, "aloha,

my sweet Lord, lay me among the flowers by Waiakeakua, and do not slay my father."

Then breathing moans and murmurs of love, she lay for a time weak and fainting upon her lover's breast, with her arms drooping by her side. But all at once she clasps his neck, and with cheek to cheek, she clings, she moans, she gasps her last throbs of love and passes away; and her poor torn corse lies limp within the arms of the love lorn chief.

As he cries out in his woe there are other voices in the cave. First he hears the voice of Ua speaking to him in soothing tones as she stoops to the body of her friend; and then in a little while he hears the voice of his great leader calling to him and bidding him stay his grief. "Oh King of all the Seas," said Kaaialii standing up, and leaving Kaala to the arms of Ua, "I have lost the flower thou gavest me; it is broken and dead, and I have no more joy in life."

"What," said Kamehameha, "art thou a chief, and would cast away life for a girl? Here is Ua, who loves thee; she is young and tender like Kaala. Thou shalt have her, and more if thou dost want. Thou shalt have besides the land I gave thee in Kohala, all that thou shalt ask of Lanai. Its great valley of Palawai shall be thine; and thou shalt watch my fishing grounds of Kaunolu, and be the Lord of Lanai."

"Hear, oh King," said Kaaialii, "I gave to Kaala more of my life in loving her, and of my strength in seeking for her than ever I gave for thee in battle. I gave to her more of love than I ever gave to my mother, and more of my thought than I ever gave to my own life. She was my very breath, and my life, and how shall I live without her?"

"Her face, since first I saw her has been ever before me; and her warm breasts were my joy and repose; and now that they are cold to me, I must go where her voice and love have gone. If I shut my eyes now I see her best; therefore let me shut my eyes forever more." And as he spoke, he stooped to clasp his love, said a tender word of adieu to Ua; and then with a swift strong blow, crushed in brow and brain with a stone.

The dead chief lay by the side of his love, and Ua wailed over both. Then the king ordered that the two lovers should lie side by side on a ledge of the cave; and that they should be wrapped in tapas which should be brought down through the sea in tight bamboos. Then there was great wailing for the chief and the maid who lay in the cave; and thus wailed Ua:

Where art thou, oh, brave chief?
Where are thou, oh, fond girl?
Will ye sleep by the sound of the sea?
And will ye dream of the gods of the deep?
Oh, sire, where now is thy child?
Oh, mother, where now is thy son?
The lands of Kohala shall mourn
And valleys of Lanai shall lament.
The spear of the chief shall rot in the cave,
And the tapa of the maid is left undone.
The wreaths for his neck they shall fade
They shall fade away on the hills.
Oh, Kaaialii, who shall spear the *uku*?
Oh, Kaala, who shall gather the *nauu*?
Have ye gone to the shores of Kahiki,
To the land of our father, Wakea?
Will ye feed on the moss of the cave?
And the limpets of the surf beaten shore?
Oh, chief, oh, friend, I would feed ye,
Oh, chief, oh, friend, I would rest ye.
Ye loved, like the sun and the flower,
Ye lived like the fish and the wave,
And now like the seeds in a shell,
Ye sleep in your cave by the sea.
Alas! oh, chief, alas! oh, my friend,
Will ye sleep in the cave evermore?

And thus Ua wailed, and then was borne away by her brother to the sorrowful shore of Kaunolu, where there was loud wailing for the chief and the maid; and many were the chants of lamentation for the two lovers, who sleep side by side in the Spouting Cave of Kaala.

THE PUBLIC ARCHIVES COMMISSION.

Summarized from official reports of the Librarian R. C. Lydecker.

AFTER many years accumulation of numerous documents in the several departments of government which for a long time past has demanded attention, it has been reserved for the Legislature of 1905 to care for this valuable historic heritage of the Hawaiian government, by making provision for the inauguration of the work of classification and preservation of these archives, and provide them with a permanent home of tasty design specially arranged for their requirements.

From records on file the credit is due Prof. W. D. Alexander as being the first to call attention to the desirability of preserving these documents, which is shown in a letter to the Minister of Foreign Affairs, wherein he reports their deplorable condition and suggests that a suitable appropriation be secured for their proper care. Acting thereon, aid in the sum of \$2,500 was secured out of \$6,000 recommended to the Legislature of 1892, the committee reporting as follows:

"These archives embrace all kinds of public documents, in "manuscript from the time of Kamehameha II., subsequent to 1820" (the examination now being made has brought to light documents as far back as 1790).

"Among them may be found the original papers of the early Hawaiian chiefs, letters of David Malo, the distinguished Hawaiian historian, hundreds of papers relating to the diplomatic complications with France and England, documents "concerning the recognition of this Kingdom by the United States, England and France, others pertaining to our treaties "with various Foreign Powers" (including the treaties themselves) "besides the official papers relating to all the Departments of the Government, including many hundred manuscripts written by the Hon. Robert Creighton Wyllie, who

"from March 26, 1845, until his death on the 19th of October, 1865, a period of more than twenty-one years was Minister of Foreign Affairs of this Kingdom."

From the provision obtained Rev. R. R. Hoes, chaplain of the U. S. S. *Pensacola*, then in port, was engaged in arranging and classifying certain of the records for several months during 1892-3, under leave of absence. In 1895, the work was resumed by Dr. N. B. Emerson and carried on some time by placing a good portion of the Foreign Office documents in chronological order, following which, little was done beyond work by the clerical staff of the Secretary's office in collecting the various treaties and copying official correspondence that was becoming illegible, until the appointment of the present Commission.

Following annexation the Chief of the Bureau of Archives, came here with a view of having these documents transferred to Washington, but was urged on account of their relation to land titles to leave them in Territorial custody. This was agreed to providing a fireproof Hall of Records would be built to house them. Agreeable to this promise, the Legislature of 1903, appropriated \$75,000.00 for such a building. No further action was taken until the last Legislature passed an Act "Providing for a Board of Commissioners of Public Archives," Section 1 of which reads as follows: "There shall be a Board of Commissioners of Public Archives, consisting of three members, one of whom shall be the Secretary of the Territory ex-officio, to be appointed by the Governor, by and with the advice and consent of the Senate. Said Secretary shall be Chairman and Executive Officer of such Board."

The above Act was approved April 3, 1905, and in accordance therewith, Prof. W. D. Alexander and Mr. A. F. Judd were appointed Commissioners under date of April 26th, and they with the Secretary of the Territory constitute the present Board. The first action of the Board was the appointment of R. C. Lydecker to take charge of the active work.

The Board took immediate steps to have plans drawn and advertised for bids for the construction of the Hall of Records,

which bids were opened June 30th, 1905, and the contract awarded to the American-Hawaiian Engineering and Construction Co., for \$35,217.00. Other expenses will make its total cost \$36,978.34. Ground was broken and work began July 10th.

The building will stand in the Capitol grounds, east of the Capitol itself and face the road leading to the Likelike street gate. It will be of brick covered by cement, one story in height, and in classic design, fireproof in all its parts and will consist of two sections, vault and offices. The vault will consist of the rear section and will open into the front section of the building by a steel door. This vault will be 30x40 feet in size and fitted with steel cases in which the archives will be stored. The front section will be 28x54 feet, divided into three rooms. The central room, a kind of lobby will be 17x27 feet, across the rear of this will run a marble counter all the way, behind which the custodian of the Archives will have his desk and office. From his office the only door leading into the archives vault will open. On the right hand side will be a private office and Board room, 17x28 feet, and on the left hand side a room of similar size for the use of persons looking up archives and references.

The plan is, after the documents are properly arranged, to have the archives accessible at all times when the office is open to visitors and students, but all papers must be obtained directly from the custodian, receipted for and returned to him; none can be taken from the building. It is expected that this building will be completed February 1, 1906. The proper segregation, classification and indexing of the great mass of material is a work that will require some time, and until this is done the building must necessarily be closed to the public.

It is a matter of congratulation that the work of caring for, and preserving these valuable documents, tracing as they do the history of Hawaii from the darkness of heathenism down to the present time, is at last undertaken in a manner that will ensure their future preservation. It is a duty that has been too long neglected, for not only are these documents

valuable to the student and historian, but their practical value to the government, or individuals, especially in the settlement of land questions, is great. Though the Commission has only been in existence but a few months, documents have been found that will result in a saving of no less than seven thousand dollars, establishing as they do the government's claim in a case about to come up in court.

From the Librarian's report at a recent meeting of the Archives Commission, the following extracts are made to show the progress and prospect of the work.

Duties began by a general examination and inventorying of the various trunks and containers found in the several departments of the government, as follows:

In the attic of the Capitol building there was found 132 trunks of Foreign Office and Legislative documents stored. In the basement, two rooms were found to contain documents of the Interior Department, Post Office, Custom House, and Chinese Bureau which have been put into packages, numbered, labeled and inventoried, making some 250 parcels. There were also several trunks containing Foreign Office papers with other material in the vaults of the Tax and Land offices, and the closets in the Secretary's and Governor's offices possessed books and papers belonging to the Archives Bureau.

After caring for the loose papers of the Chinese Bureau and Interior Department, a systematic examination of the Foreign Office and Executive documents was made. These papers and books are at present contained in 49 trunks and 81 packages, which will be added to when the balance of the documents in the various offices are removed. The packages have been numbered and inventories made of their contents. Each trunk has been thoroughly examined and duplicate inventories made of the contents, one of which is placed in the trunk with the documents and the other files in the office.

To facilitate the work of segregation and indexing when the Hall is completed, in addition to the above mentioned inventories others have been made in which are grouped together all the documents of any one year, giving the number

of the trunk and of the package in which the papers of any year may be found. It was necessary to do this as the Foreign Office documents were badly scattered in various trunks, in most cases, without regard to chronological order. This will greatly facilitate the final work as it will enable one to readily find any package desired.

After finishing with the Executive and Foreign Office documents those of the Legislative will be taken up. This will not be a work of arduous character as in most cases the papers of the different sessions are each in one container.

Documents that were placed in camphor trunks have been found, as a rule, in a very fair state of preservation, while those in small koa trunks, and the archives of the British Commission in a small koa box, are in poor shape, the papers, and books in some instances being badly eaten by worms. These will have to be watched and treated from time to time.

The following plan is proposed in reference to the segregation, classification and indexing under the following general heads:

- 1st. Form of Government.
- 2nd. Departments under the different governments.
- 3rd. Bureaus of the departments (with subdivisions as may be found necessary).
- 4th. Miscellaneous documents that will not come under the above headings.
- 5th. A segregation as to years as far as practicable.
- 6th. A collecting together of all documents relating to any important event in the history of the country so that in looking up such, or any document bearing on the same, the papers in connection therewith will be together as far as possible.

After segregating and classifying as above, to make what might be called a summary index under these different headings, one by which any class of documents could be readily turned to and the particular papers wanted found with little or no trouble.

On the completion of this summary index the building could be opened to the public, but not until then.

PAPAYA CULTURE IN HAWAII.

THE general use as a breakfast fruit to which the once despised papaya (*Carica papaya*), is being adopted accounts in a large measure for the attention that has of late years been given to its cultivation here, and the improvement noticed in the varieties grown to meet the market demand. It is many years since general attention was called to the excellent "aids to digestion" qualities of this fruit through its pepsin properties, but the public have been slow to realize its value in this regard. The United States Dispensatory states it as ranking next to the banana in importance and the use of its leaves to enwrap meat to render it tender has been long recognized as being very effective.

The following paper on the cultivation of the papaya for the Honolulu market by H. M. Wells, read before the Farmers' Institute last year, is probably the first comprehensive treatment the subject has had at the hand of any of our practical cultivators, and while prepared more particularly for those "in the trade," it also may be of interest and assistance to others beside those "gardening for profit."

The papaya is supposed to be indigenous to Central America. From there it has been introduced through almost the entire tropical world. While it is distinctly a tropical fruit and reaches its greatest perfection only in hot climates yet it may be cultivated with varied success as far north as the limit of frost. Hawaii, being a semi-tropical land, furnishes then only a moderately good home for this luscious fruit.

It flourishes best on the lee side of our islands and in sheltered positions, though the trees will bear an astonishing amount of wind and still do fairly well, especially if they are grown in masses.

LOCATION AND SOIL.

In selecting a location for a papaya grove too great care cannot be exercised. The essentials to success are good soil, abundance of water and good drainage.

Good soil in this case does not necessarily mean soil that is entirely free from stones. Indeed the papaya is said to flourish best in rocky soil. In my experience I have found that they flourish wherever they can get a foothold among the rocks, and can thrust out their numerous lateral roots in search of food, either under or between the rocks.

However, rocks are not an absolute essential to the cultivation of the papaya, and if your field has once been cleared of them, a return to natural conditions would hardly be advisable.

Sandy soil is not best suited to their growth, nor is a heavy clay soil unless you are sure of your drainage.

Abundance of water is an essential; and this not only about the trunks of the trees but over the entire field, for the roots penetrate every portion of the surface soil, and if water is not present in sufficient quantities, the trees, and hence the fruit, will suffer.

Most important of all perhaps is good drainage; for a few days of standing under water will ruin an orchard after one has carefully tended it for months or years. Several cases of this kind have come to my notice. Either a decided slope or a porous soil or both are absolutely necessary.

PREPARATION OF SOIL.

Preparation of soil will vary much according to conditions. If the field can be plowed to a good depth so much the better; but if the soil is fairly light and porous, this is not absolutely necessary.

A good dressing of stable manure thoroughly worked into the soil a month or two before planting would undoubtedly bring large returns. Indeed it is almost impossible to make

the soil too rich, as the papaya is a gross feeder and will amply repay any extra outlay in the way of fertilizer by quickness and rankness of growth, and in the increased number, size and quality of its fruits. As one Honolulu lady remarked, "You must plant cats and dogs in the same hole with your trees if you want big papayas." This lady had some eighteen pounders on her trees; I think the largest ever grown here.

In the red soil of Kaimuki, the only preparation I found necessary was to dig holes, some three feet in diameter and one foot deep wherever I could find sufficient space between the rocks. Into the soil thus loosened, we put a handful of high grade commercial fertilizer which had been thoroughly mixed with the soil a day or two before transplanting to prevent burning. The young plant responds very quickly to this extra stimulus, and grows with almost amazing rapidity.

SELECTION AND SOWING OF SEED.

The selection of seed is a very important matter, and a rather difficult one. Several species of papayas have been brought to Hawaii, but it is almost impossible to secure pure seed of any of them, so liable are they to cross-fertilization. However there are lines of division that are as yet quite distinct among our Hawaiian grown papayas.

One of the best species for general planting is the so-called "long" papaya, sometimes called the Mexican papaya. This I believe to be, in its pure state, the most highly bred of them all.

One distinctive feature of this variety and a very important one is that there are no male trees. Every tree is completely hermaphrodite and so fruit-bearing. A field planted to this variety alone presents a most pleasing sight of strong even growth, and under favorable conditions, of very heavy fruitage. Indeed I sometimes think this variety will bear more neglect than any of the others before refusing to yield any more fruit.

The long papaya is so distinct from the others that a de-

scription seems almost needless here. The fruits are from eight to fourteen inches long, and from three to five in diameter. They are blunt at the stem end, and more or less pointed at the blossom end. Its flesh is fine-grained, juicy and delicious.

The only objection to it as a market sort is that it does not keep as well as some others. Dealers also object to it on the ground that it is too heavy for its apparent size, being very meaty and solid, yet there are many customers who will have no other if this variety is to be had in the market.

Seed of this variety as of all others will seldom come quite true, yet one is almost sure of getting good fruit. Some trees will bear an oval fruit, often deeply grooved. On others the typical long fruit will hang side by side with oval or with almost round fruit. Yet all are of fine quality, and indeed the hybrids seem firmer and sweeter than the original type.

Next, or perhaps first in point of value, is the so-called, "half-long" said by some to be a cross between the long and one variety of the round papaya.

Here we find an almost endless variation in form, yet there are certain well defined characteristics that distinguish this sort from the inferior ones.

First in importance is their size. They will average at least fifty per cent. larger than any others, specimens weighing ten pounds being not uncommon. Second, they differ from others in color. When young, the immature fruit is of a dark green color; when ripe they are of a rich golden color, or sometimes of a russet green overlaid with gold. Their flesh is of a rich orange, firm, thick, juicy and rich, but not quite as fine. This variety I consider the best of all for the market. They are good shippers, remaining firm till almost ripe, large, attractive and good sellers.

One other variety I would mention as worthy of general cultivation. This is the so-called "dwarf" papaya. While this sort is in no respect a true dwarf, yet its habit of growth is such that it may be readily distinguished from all others in a field.

The leaf stalk of this papaya is short and decidedly recurved. The result, especially in a young tree is a trim, compact little tree almost as symmetrical as a kahili. As the tree gets older this characteristic is less marked. The leaf stalk has also a decided violet hue. This may be the "violet" papaya that grows to such a large size in the West Indies.

The fruits of this variety set quite freely on long stems. In this respect it is similar to the "half long" mentioned above. But its fruits are of a more decided pear shape, are smaller as grown here, and are of a lighter green when half grown.

In the winter months, this variety was also quite marked in that it still retained a decided green cast when quite mature, so that the fruit was often rejected as being too green when really quite ready for the table. The flesh in winter also seemed more juicy and less sweet than any of the other sorts. The hot weather however has changed all this, the fruit, at this writing, being quite yellow and sweet when ripe.

While trees of this variety failed under most favorable conditions to produce fruit of very large size, yet it is a variety of decided merit, and some dealers prefer something smaller than the ten pounders. It remains to speak of two other varieties grown here that are more or less distinct. The first is the round variety with the short stem, the "mother papaya" of Mrs. Tucker's song, the tree which has like the old woman who lived in a shoe, "so many children she doesn't know what to do." This variety was, I suspect, the first one introduced into Hawaii, and doubtless was responsible for the fact that papayas were long considered only as pig food in Hawaii.

This is the variety that you don't want to save seed from—this and the next one, the long bell-shaped sort. The latter will rival the former in the number of fruits it will set. I have counted eighty on a single tree, but not one reached a marketable size. No doubt the size might be increased in both of these varieties by thinning them out, but I doubt if they would ever equal the other sorts.

These five species, with variations are all that I have yet

observed here in Hawaii, unless the fruit of the so-called male tree be called a variety. These are very sweet but of no value. It would be an interesting experiment, however, to see what kind of trees one would raise from their seeds.

Our choice of seed then seems to lie among three varieties, the long, the half-long and the dwarf. Before we leave this branch of our subject, however, it would be well to consider the likelihood of our getting bearing trees after all our trouble.

It has been a common experience to plant a number of trees and after caring for them for several months to find that instead of having a well balanced orchard one has a barren field. Of course there is no such difficulty with the long papaya, but with all others it is a serious problem and any light on it would be of great value.

A prominent gardener in the islands is responsible for the statement that seed from the fruit of old trees will produce a large proportion of bearing trees, while that from young trees will produce mostly males. If this is true it is well worth remembering.

Many people have studied the young plant trying to detect some sign by which the two could be known when quite young; but this is to say the least very difficult. If the matter can be determined in the seed so much the better.

In this connection it might be well to mention the fact that trees have actually been changed from the flowering or male to the fruit-bearing or female simply by persistent breaking off of the blossoms, or by topping, till they show signs of re-forming. This sounds rather fishy, but it has actually been done by several people in the islands.

I have, however, demonstrated to my own satisfaction that this method is not a success on a large scale, as it takes a long time for new blossoms to appear, and ten to one the old type will persist through several periods of adversity. In fact I have never yet succeeded in changing one drone to a worker.

PLANTING THE SEED.

Having selected our seed with all due care, the next thing is to raise the plants.

The seed when taken from the papaya should first be washed, rubbing them together with the hands to remove the outside covering and pulp, then dried if not planted immediately. Planting should be done in boxes from four to six inches deep, in rows say four inches apart, and seeds not nearer than two inches.

One writer on the papaya has stated that not one seed in a hundred will grow. And he based his statement on the fact that when the natives of some island wanted a tree, they dug a hole in the ground, and put in two or three papayas, from which only two or three plants would grow. This method of determining the matter was certainly not very conclusive to a practical gardener. My experience has been that every well developed seed will grow if given a chance.

Papaya seeds germinate slowly; hence the soil in the boxes should be kept moist for a long time. It is a good plan to cover the boxes with sacking or other material to retain the moisture; being careful to remove the covering as soon as the plants appear, which will be in ten days or two weeks.

When the plants are well up, a slight application of fertilizer will hasten their growth as it is important to keep the plants moving from seed to maturity. If a young plant has once become stunted it is better to start over again. Plants should not be over six inches high when transplanted, as both roots and stems of older plants are very easily injured, and when injured will die. Transplanting them must be done with great care.

When the soil is of sufficient consistency the boxes should be wet down just enough so that the soil will cling together. If too dry, it will crumble; if too wet it will all fall away from the roots. Then remove one side of the box and with a trowel or other sharp tool carefully remove each plant with its ball of dirt.

Plants should be placed not less than eight feet apart. My practice has been to put two trees in each hole to ensure a larger percentage of bearing trees.

The great consideration now is to keep the plants in a thrifty condition. With us this has meant further applications of fertilizer throughout the life of the plant, say every three months. Do not be afraid of overfeeding, or of giving too much water if the drainage is good. Do not plant anything between the rows. The roots will permeate the whole surface of the soil and will be very jealous of any rivals.

The common practice of making a small hole for the tree in the midst of a grass plot is bad for any fruit, but especially so for the papaya, and except in rare cases will result in a stunted growth, and either no fruit at all, or fruit of very poor quality.

Under favorable conditions fruit should be picked in ten months or a year from planting.

THE MARKET.

The market, so far as the raw product is concerned, is of course very limited, being confined to Honolulu and what can be sold at the coast. So far we have had very little experience in shipping to the coast. One or two shipments have gone very well, while others have arrived in bad condition. I believe that properly packed, they can be sent to the coast successfully; but it would take time and good handling to build up any large market for them.

As to the canned product, others can speak from a larger experience.

One point I wish to emphasize in conclusion. I was told by a prominent island grower that seed from the best trees would produce some trees that were good bearers, and others that would bear little or no fruit, or fruit much smaller than that of the parent tree.

The limited experience that I have had leads me to believe that this is not the case; that it is bad environment and not

bad heredity that is the cause of the failure of some trees to produce good results.

A bit of personal experience will illustrate my meaning. In a small part of a certain field I planted squashes between the rows of young papaya trees, fertilizing the squashes heavily. The squashes bore well; but as the trees in that field developed, all the other trees set fruit and gave every promise of large yield, while those among which the squashes were planted seemed less thrifty and set no fruit; the young fruit not maturing, but falling to the ground.

The difference was so marked that after the squashes were harvested, I gave those trees an extra dose of fertilizer and in a few weeks they were setting fruit, and eventually produced as finely as the other trees had done.

Another point along the same line. It is commonly remarked that as a papaya tree gets older, the fruit gradually gets smaller till the tree loses all its usefulness. This I believe is the result of nothing more or less than the exhaustion of certain food elements in the soil. Experience so far shows that two year old trees may be made to increase the size of their fruit almost if not quite equal to that of their first year's fruiting.

How long the life and usefulness of a tree may be profitably prolonged is a question yet to be solved, but I suspect that it is simply a question of proper food within the limit of the tree's natural existence. The very fact that the tree bears fruit at all proves its vitality. Spare the old tree. If it gets too tall for convenience in picking simply cut off the top and it will branch out below, but before you go to the trouble of raising a new tree give the old one a chance. "Dig about it and dung it, and it will bear fruit well."

The recent demolition of the two-story building on the water front below Queen street, at the foot of Nuuanu, erected by A. F. Cooke of the Inter-Island Navigation Co. about the year 1883, gives now a broad, unobstructed city front from Brewer & Co.'s to the Inter-Island Steam Nav. Co.'s structure Ewa-ward of Maunakea street.

THE NAHIKU RUBBER COMPANY.

The Pioneer Rubber Growing Corporation of the United States.

Prepared for the Annual by W. W. Hall, Esq.

THE year 1905 marks the introduction of a new and very important industry into these Islands. The Nahiku Rubber Co., Ltd., was incorporated under the laws of the Territory of Hawaii, January 24th, 1905, with a capital stock of \$150,000.00—divided into 1,500 shares of the par value of \$100.00 each. The company was not started until it was definitely ascertained that rubber trees of the best quality would grow at Nahiku, and the yield of rubber from these trees was sufficient to make it a profitable investment. A number of trees of the Ceara variety have been growing at Nahiku for six years, and when these were tapped it was found that the rubber obtained was equal to the best Para rubber. The company has secured in fee simple nearly nine hundred acres of land with the offer of more if wanted.

These lands are the best for the cultivation of rubber to be found in the district, and have an assured annual rainfall of from 150 to 275 inches.

The Nahiku Rubber Co. have at present growing in their permanent places 11,200 Ceara or Manicoba trees, varying from one to fifteen feet in height; 14,860 Hevea Brasiliensis stumps and plants, and 500 Castilloa trees, these latter being similar to the rubber trees grown in Mexico and Central America. This makes in all about 26,560 trees already growing, most all of which will probably reach maturity, and there are planted in the nursery 33,000 Hevea seeds just received from Ceylon and Singapore. These last, although just planted, are germinating very rapidly. The company expect to plant about one-third of its lands in Ceara rubber and the remainder in Hevea or Para rubber. The former variety can be tapped after three years, and the latter after five years, and

the yield of rubber will increase annually for a number of years. The company expects to have about all their lands planted by the end of 1906 or early in 1907.

There are many thousands of acres of land on the Islands where it is rainy and not too windy, where rubber will thrive, and if this first rubber company proves a success, it is hoped that many other rubber companies will be started.

As this is the first rubber plantation ever started on American soil the officials of the Department of Agriculture at Washington are greatly interested in its success, and are doing everything they can to help it along.

The officers of the company are:

W. W. Hall, president, Honolulu.

W. E. Shaw, vice-president, Honolulu.

Fred T. P. Waterhouse, treasurer and secretary, Honolulu.

L. C. Howland, auditor, Honolulu.

Dr. E. C. Waterhouse, director, Honolulu.

David C. Lindsay, director, Maui.

C. D. Lufkin, director, Maui.

Robert H. Anderson, manager, Nahiku, Maui.

Office, Hall building, Honolulu.

Vancouver in his several visits to these islands seems to have taken special interest in the introduction of various animals and plants, as shown by the following extracts from Transactions of the Hawaiian Agricultural Society. In March, 1792, he left at Hawaii with Keeaumoku, father of Kaahumanu, a goat and kid, some fine orange plants and garden seeds; and to Prince Kaumualii, of Kauai, a male and female goat and two geese.

In February, 1793, he also left to Keeaumoku one ram, two ewes and one ewe lamb. He further landed for Kamehameha a bull and cow from California on February 19th, and on the 22nd, five cows, two ewes and a ram.

March 17th of the same year he presented some goats to the king of Maui, and on January 15th, 1794, he landed a bull, two cows, two bull calves, five rams and five ewe sheep from California, at Kealakekua Bay, for Kamehameha.

HONOLULU'S LOCAL OFFICE OF THE U. S. WEATHER BUREAU.

Prepared for the Annual by Alex. McC. Ashley, Director in Charge.

IN its "Retrospect for the Year," the last issue of the Annual inadvertently failed to note the establishment, on September 1, 1904, of a local observing station of the U. S. Weather Bureau, and the inauguration, in connection therewith, of the Hawaiian Section of the Federal Climate and Crop Service.

The business quarters of the local office are located in rooms 47-50 on the second floor and in the King street end of the Alexander Young Building, the open air instruments being installed on the roof of the makai tower. As the instrumental equipment is similar in character to that in use at each of the more important Weather Bureau offices on the mainland and is considerably more elaborate than that formerly maintained by the Territorial Meteorological Service, a brief description thereof will be of interest. The roof equipment includes the following instruments: a standard instrument shelter (containing maximum, minimum, dry-bulb and wet-bulb thermometers, and a thermograph), tipping-bucket and stick rain gages, a wind-vane, an anemometer, an electrical sunshine recorder, and a nephoscope. In the office rooms are to be found mercurial barometers, a barograph, a quadruple register, and a complete display of duplicate instruments for the instruction of visitors. The anemometer, wind-vane, tipping-bucket, rain gage and sunshine recorder on the roof are in electric connection with the quadruple register in the office below, enabling the observers to secure automatically a record of wind direction each minute, a continuous record of wind velocity, a record of each minute of sunshine, and a record of the exact time of occurrence of each one-hundredth of an inch of rainfall. From the thermograph and barograph are obtained continuous records of air temperature and atmospheric pressure, the accuracy of these records being assured

by frequent eye readings of the thermometers and barometers.

Two distinct lines of work are being carried on by the office: (1) observation work in Honolulu, and (2) the collection and publication of climatic data and crop information from various points throughout the group. Under the first heading it is to be noted that complete observations are made in Honolulu at 8 a. m. and 8 p. m., local time, every day in the year, the results of these observations being immediately cabled to the mainland where they are published daily on the weather maps issued in all parts of the country and thence find their way into the news columns of practically all of the more than 2,000 daily newspapers. Thus the wonderfully equable climate of the "Paradise of the Pacific" is being brought to the attention of the entire reading public of the United States. Daily, weekly, and monthly statements of local weather conditions are also supplied to the Honolulu press. From the compiled records on file in the Honolulu office, extracts are furnished gratis to all applicants. In the collection of climatic data and crop information from various points in the group, the Honolulu office relies entirely upon the voluntary co-operation of public-spirited citizens, many of whom not only supply the desired information but also maintain their own rain gages and thermometric equipments. As far as practicable, however, standard instruments are supplied by the Weather Bureau. The reports received from crop correspondents are published by the Honolulu office in the form of weekly Crop Bulletins, which are mailed gratis to all applicants. In its issue of the weekly bulletins, it is the aim of the Bureau to present to the public a weekly statement of the weather conditions which have prevailed throughout the group, the effect of these conditions upon the growing staple crops, the present condition of these crops and their promise, and the agricultural operations which are being carried on. At the close of each month is published a more elaborate bulletin containing reports of daily temperature and precipitation observations made by co-operative observers at more than 150 points

in various portions of the Islands. The monthly bulletins also contain charts upon which are depicted graphically the distribution of temperature and rainfall in the different islands; also a condensed summary of the principal climatic features of the month and a report on crop conditions. The monthly reports are for gratuitous distribution. In the course of a few years it will be possible to compile, from the data being collected, an elaborate brochure on the climatology of the Hawaiian Islands.

With the advent of a local office of the Federal Weather Bureau, the Territorial Meteorological Service, conducted for a number of years under the able supervision of Mr. Curtis J. Lyons and his successor, Mr. Robert C. Lydecker, ceased to exist, all records and instrumental equipment being turned over to the Federal station, which is now in operation under the supervision of Mr. Alex. McC. Ashley, Section Director in charge, and his assistant, Mr. T. F. Drake.

THE SPELL OF THE TROPICS.

By Frederic J. Haskin, in the P. C. Advertiser, May 25, 1905.

THE people of Hawaii have their problems to solve, but they will doubtless be able to work them out. It is a place where a home is worth striving for. He who sojourns here awhile is ever loth to leave. The fair skies and bright flowers and brilliant shrubs offer a charm that grows the while, and makes other less favored climes dull in comparison. Only those who know the spell of the drowsy tropics can understand the hold they have upon the fancy. No pictured palm can wave and drone its evening anthem like the one that has its roots in the sand and its crest in the wind; no painter's brush can catch the majesty of the mountain peak at the sunset hour; and no juggler of words can impart the zest that rides with the spray of the southern sea. To know it for a day is to know it forever. Its pleasing memory never fades."

HONOLULU SYMPHONY SOCIETY.

Prepared for the Annual by B. L. Marx.

THE Honolulu Symphony Society sprang into existence about three years ago. It started in a small way with a group of amateur musicians meeting together to rehearse chamber music. This gathering grew until almost all the instruments of a full string orchestra were represented. It was decided then to organize a musical society so that the orchestra could have the financial support of all persons interested in promoting the study of good music. The aim of the Society was to form a club that would be a musical center; a home for music lovers as well as for the members of the orchestra. This plan met with such hearty support that the Society was able to hire and fit up a club house and to purchase a small library of music. It was surprising to find so many amateur musicians playing on such a wide variety of instruments in a place as far removed from musical centers as Honolulu. The orchestra started with a complete string choir of first and second violins, violas, violin-cellos and double basses. In the wood-wind choir there were flutes, oboes and clarionets; in the brass were two cornets and a trombone, and there were also percussion instruments, tympani, bass and snare drums, etc. Professor F. A. Ballaseyus, then instructor of music in Oahu College, volunteered to direct the orchestra and regular rehearsals were held weekly.

The first appearance of the orchestra was at a smoking concert given at the club house, in honor of the officers of the German cruiser "Cormoran" in October, 1902. The orchestra played Mozart's Symphony in G Minor as the principal number on the program.

Public concerts have been given since then by the Society in the Opera House and on the grounds of Mr. James B. Castle at Waikiki. Honolulu is, perhaps, the only place in the world where an audience can sit on a lawn, under the shelter of palm trees; gaze out on the ocean glistening in the moon-

light, and listen to a Beethoven symphony. To the concert-goer who has to crowd into a stuffy room in winter, this description will read like a fairy tale.

The following programs of concerts given by the Society will indicate the class of music rendered by the orchestra:

HONOLULU SYMPHONY SOCIETY.

F. A. Ballaseyus.....Musical Director.

December 27, 1902.

Program.

1. Overture—"Don Juan" Mozart
2. Pastoral Symphony (from "The Messiah").....Handel
3. Symphony Militaire Haydn
 Adagio
 Allegro
 Allegretto.
4. Vocal Selection Wallace
 Mr. F. Melchers.
5. Spanish Serenade—"La Paloma".....De Yradier
6. Cornet Solo Rollinson
 Signor Matteo Geraci.
7. Male Chorus Selected
8. The Forge in the Forest "Idyll".....Th. Michaelis

HONOLULU SYMPHONY SOCIETY.

W. F. Jocher.....Musical Director.

Hawaiian Opera House, Saturday Evening, May 2, 1903.

Program.

1. Overture—"L' Impresario" Mozart
2. Unfinished Symphony in B Minor.....Schubert
 I Allegro Moderato (B Minor)
 II Andante con moto (E Major)
3. Ave Maria—From Cavalleria Rusticana.....Mascagni
 Mrs. Geo. W. Macfarlane and Orchestra.
4. Fantasia—"Ein Marchen" Bach

5. Violin Quintette Wagner
Prayer from Lohengrin.
Messrs. B. L. Marx, Wm. A. Love, Dr. O. E. Wall, Arthur
Davies, Jos. Rosen.
6. a "Polish National Dance".....Scharwenka
b "Hungarian National Dance".....Hasselman
Historical and Descriptive Notes of Franz Schubert's Un-
finished Symphony in B Minor by William F. Apthorp, fol-
lowed.

Two very successful operatic performances were given in the Opera House by Mrs. Annis Montague Turner and a company of amateurs in 1903. "Maritana" was sung in February and "Carmen" in December of the same year. The orchestra of the Honolulu Symphony Society assisted in both operas.

The Society has given a number of informal concerts in its club house for its own members and their friends, which have proved most enjoyable affairs.

Since the departure of Mr. W. F. Jocher the orchestra has been directed by Mr. Gerard Barton, Dr. A. Marques and Mr. Carl Busch.

At present Mr. Joseph H. Stockton, an experienced musician, is director of the orchestra, and the members are working hard under his direction, rehearsing for a symphony concert to be given in the Opera House in the near future.

All of the Honolulu newspapers have been most generous in their support of the Society and its aims, and it would seem fitting, as a mark of appreciation, to close this article by quoting the following editorial of "The Hawaiian Star":

"Through no other instrumentality, possibly, can so much be done for as little money, for the altruistic benefit of Honolulu, as through the Honolulu Symphony Club. For three years it has maintained itself as a musical organization, entirely amateur in its character, seeking to cultivate the musical taste of the community, and musical proficiency and musical education among its members. From time to time the

club's orchestra has given delightful public concerts, the last one being last Saturday evening. On many other occasions it has given its assistance to other commendable organizations in their efforts to carry on their work. In many ways it has demonstrated not alone that there is a place for it in the life of Honolulu, but that it fills that place, and is an active force for the betterment of the community.

"The organization is that of a club or society, maintaining a club house, supporting a competent and successful musical director, and seeking to interest all amateur musicians in the serious study and practice of good music. It holds regular and frequent musical practice. It maintains a center of interest in music and for things musical. Its club house is the natural rendezvous for visiting musicians and the club has ever been hospitable to such.

"It is scarcely possible to exaggerate the importance of the good of such an organization. It focalizes musical effort. It concentrates in practical and effective channels individual, and what otherwise might be scattering and ineffective effort. Its influence on musical taste, both in the quality of music and the quality of musical rendering, cannot be overestimated.

"The effective way to support the club and to foster its efforts is to increase its membership. If every eligible member of the community who has an interest either in music or in the good of the community would support the club to the extent of membership fees and dues, the course of the club would be plain and the means to secure its best work and influence would be assured. The Honolulu Symphony Club desires the membership and co-operation of every music lover in the community and of every eligible person who would aid in all those elevating influences in the community which emanate from such an organization. The Honolulu Symphony Club deserves all that it asks."

THE PICTURE ROCKS OF NAALEHU.

By Rev. W. D. Westervelt.

IN the Hawaiian Annual of 1898, J. K. Farley gave a valuable account of "pictographs" found on the "pictured ledge of Kauai"—a beach of black lava at Koloa, over which sweep the ever restless surf waves. Sixty-seven of these carvings were counted.

A. F. Judd carried the investigation very much further and noted the results in the Annual of 1904. He visited "two localities on the island of Molokai, one near Momomi and the other near Kalae." On the island of Oahu he visited the picture caves near Koko Head. He also went to Koloa, Kauai, and with Mr. Farley made a new investigation of the picture ledge, finding new carvings.

Mathison, who came to Hawaii in 1821-22, found the rock on the island of Oahu, which the cannibal—Aikanaka—chief man-eater, used as a platter upon which to carve his human victims. Mathison says, "Upon the surface of this rock I discovered many rude representations of men and animals."

Ellis, who came to visit the American Missionaries in 1822, remaining to work with them for a time and meanwhile made a tour of the Islands, says that he saw a number of figures of men and animals in different places along the southwest coast of the island of Hawaii. He understood from the natives that these carvings denoted parties of men or groups of animals, and that they were carved to signify that a party was either journeying or had journeyed around the island. This harmonizes with certain sacred journeys or pilgrimages, which the natives have been in the habit of making on the island of Hawaii from time immemorial.

It also imparts the characters of worship to the rock carvings, an idea which was suggested to the writer by an old native minister.

Fornander, in the *Polynesian Race*, mentions picture rocks on Molokai. He says, "They are near a number of large irregularly shaped volcanic stones, standing on the brow of the hill. One of these is shaped like a high-backed chair, which judging from analogy to others like it in other parts of the group, may have served as a seat for the chief, or his priest, from which to look out over the ocean, or to watch the stars."

Fornander's feeling that these figures were connected in some way with religion of the ancient times, was so great that he referred them in his own mind to the worship of Siwa among the Hindoos whose "emblem, in Hindu mythology, is the double trident." This would indicate that to Fornander's thought the idea of procreation might have been connected with whatever worship was offered before these pictographs. He takes pains indeed, to call attention to them in connection with the upright stones which the Hawaiians held sacred and called Pōhaku-a-kane "which formerly served as altars or places of offering." Such stones are "used in the Lingram or Phallic symbolism of the Siwa culte in India," and mark the phallic idea the world over.

In March, 1905, I had the privilege of twice making a thorough examination of the carvings in a ravine not far from Naalehu in the district of Kau on the island of Hawaii.

At that time I had not given any especial attention to the history of pictographs in these Islands, and yet the impression was made at once that these figures were something like the rude gods of New Zealand which ruled over the principle of generation and also that they were in some way connected with the ancient religion of Hawaii. The location is one well calculated to accompany the idea of worship. The ravine is a remnant of a very ancient lava flow. The lava had forced its way along the surface of the ground, cooling on the top and sides, but leaving a long tunnel or series of caves through which the last remnants of the eruption forced their way to the sea shore. As years went by the ceiling of the tunnel

caved in leaving a ravine with precipitous and, many times, overarching sides.

At Naalehu a fine natural bridge was left over the ravine, while the sides are very much overarched for some distance from the bridge itself. An almost ideal spot is provided for the preservation of pictographs and their worship.

The sides of the ravine, under the overarching lava, have been coated with the white soda deposit which is so frequently connected with volcanic outbursts. By cutting away this white matter a black background was reached at a depth of only part of an inch. The coarse rude stone implements of the past were not fitted for fine carving, nor was the artistic taste of the Hawaiians ever well developed in the formation of beautiful carved work in any form, therefore only the crudest representations of the human form could be expected.



But the curious thing is that these figures at Naalehu, as well as all the figures throughout the islands show no independent work. They are all patterned after the same rough model. They are almost invariably made with the arms and

limbs at right angles rather than at an acute angle, although one figure at Naalehu varies from the ordinary rule.

At Naalehu there is scarcely anything which might be considered as a picture of animals or fish. The straight lines which sometimes occur may be imagined to denote a number of human beings or anything else which the fancy dictates.

Probably not less than from fifty to seventy-five figures are carved on the ravine sides, partly under the natural bridge and partly under the overhanging edges of the ravine. The average height of the figures would be about twelve inches.



The problem of the picture rocks of the Hawaiian Islands is still unsolved. They are unquestionably very ancient. They seem to be connected with the ancient religious ideas of the people, although the natives are very chary of telling anything

about the past which they think might reflect upon their ancestors in the way of either cannibalism or immorality. It is possible that careful study of the localities and systematic friendly inquiry among the natives even at this late date, might bring to light sufficient archæological material for some safe conclusions.

It may be worth while to call attention to the different known and reported localities of picture rocks, in the different islands, thus leading other persons to make record of other places not yet recorded. On Kauai the beach at Koloa has long been known. On Oahu, Halemanu, or as it should prob-

ably be called Helemanu, the sacred valley for the birth of the highest chiefs, and the cave on the ocean side of Koko Head have been the places for the carved rocks. On Molokai, Mo-momi and Kalae are the localities. On Hawaii, Pahala and Naalehu have been examined and photographed. In or near the temple of refuge at Honaunau, Hawaii, are said to be carvings in memory of "Kamalawalu, a King of Maui, who was slain in battle at Hokuula, Waimea, Hawaii, in the latter part of the 14th century." Other localities on the island of Hawaii not yet explored are said to be (1) near the heiau of Koki at Kapoho, Puna, (2) at Kawaihae on the floor of a heiau, probably the old heiau in ruins some distance from the village, (3) at Laupahoehoe, (4) on the beach not far from Waiohinu, (5) on the Kona side of Honuapo. These places were given by old natives when shown the pictures of the figures at Naalehu.

On the island of Niihau markings are said to exist at Kii, which means images or pictures, many times referring to forms of worship. Some inquiry should be made on the islands of Maui and Lanai.

This may not be a very important matter, but in the study of the ancient times, it cannot be said that anything is unimportant.

In connection with the foregoing mention may be made of the remarkable and very ancient ruins found on Easter Island, on which pictographs in several places have been discerned.

Easter Island is in the southeastern part of the Pacific Ocean, and is one of the nearest islands of Polynesia to South America. It is the last stepping stone for voyagers from Asia to America.

On Easter Island are many stone houses, terraced temples with great stone walls, and colossal stone images. Among these ruins are representations of human figures, birds, tortoise and rude animals. All the work, on houses, images and pictographs, is very rough and coarse. Some of

the more perfectly preserved images, those most easily removed, have been taken away to the British Museum.

Nothing has been discovered shedding light on the origin of these gigantic ruins, and Easter Island has been called "the mystery of the Pacific."

The island of Kusaie, on the eastern side of the Caroline Islands, is also remarkable for the ruins which denote a very ancient and rude form of civilization. Large tracts of land are covered with ruins of the most massive description. These ruins are totally unlike anything now built by the Kusaieians, and there appears to be no records or traditions concerning them.

There may be other pictographs in Samoa, Fiji and other island groups. The most ancient form of temple building in Polynesia which was pyramidal, or at least terraced, may be worthy of study.

It is to be hoped that at no late date some one interested in ethnology may be able to make a careful comparative study of the ruins of temples, and images, of the rock carvings and pictographs of the Pacific Ocean.

Some of the latest explorers argue that the path of ancient travel was from America to Asia. Possibly light might be thrown upon a migration of the Aztecs, leaving traces of their journey across the ocean. My own feeling inclines toward the older idea of the passage of Asiatic or rather Aryan civilization, to Central and South America by way of the Islands of the Pacific.

It is possible that the Philippines may be useful in such comparative study. Even a cursory glance at a map of the Philippine Islands shows a very great similarity to the peculiar use of consonants seen in the language of the Aztecs in New Mexico and Central America and the people of the Incas of Peru.

ARBOR DAY.

By Ralph S. Hosmer, Superintendent of Forestry.

FOR the first time in the history of the Hawaiian Islands Arbor Day was officially observed on Nov. 3, 1905. By proclamation of Governor George R. Carter that day was set apart, with the recommendation that "appropriate and instructive exercises be held in all our public schools and that a part of the day be devoted to the planting of trees and shrubs upon the school grounds."

In past years the subject of an Arbor Day celebration has many times been discussed and various individuals and associations have observed special tree planting days, but it has waited until this year for Arbor Day to take its place among the semi-holidays to be regularly observed. It has, however, not needed an official Arbor Day to arouse the spirit of tree planting in Hawaii. That has been actively alive here for many years and is in large measure responsible for the attractiveness of the homes of the people throughout the islands. But there is much yet to be done toward beautifying the Territory and making it as a whole a more attractive and consequently a better place to live in. As Arbor Day gives an incentive for this work, its observance is to be cordially welcomed. The date, November 3, was chosen as being a convenient one at the beginning of the rainy or growing season, an important consideration in all planting work.

Arbor Day was originally instituted in Nebraska in 1872 to secure the planting of trees on a large scale and for economic purposes. It first became associated with school ground planting in Cincinnati in 1882, since when it has come generally to be regarded as a day especially for school observance and dedicated essentially to school ground planting. Hawaii does well to add Arbor Day to its list of semi-holidays. It is in line with the best traditions of the islands to adopt mainland customs that have proved of value. Surely the spirit underlying Arbor Day should spread rapidly here where the natural conditions are so favorable to all plant growth.

The first Arbor Day in Hawaii was a decided success. Its observation was general throughout the Territory and it awakened an interest which it is believed will be permanent. To give the initial Arbor Day a good send off and to arouse that sustained interest which is essential to its real observance, Governor Carter generously offered to contribute half of an Arbor Day Prize Fund, from which a prize to the value of five dollars could be awarded in each public school in the Territory, to the grade planting on Arbor Day the tree which as the result of being well cared for was in the best condition at the end of the year. The prize—"some object of beauty or utility"—is to be held by the grade winning it during the succeeding year, and thereafter it is to be re-awarded on the same general terms. It is stipulated that a record be kept of the names of the children in the successful grade.

By means of this contest it is hoped that permanent interest will be aroused in each school which will lead not only to the immediate improvement of the school grounds, but also to the larger work of making attractive the public and private grounds throughout each district. Various public-spirited firms and individuals in Honolulu made up the remainder of the prize fund. In all \$770.00 was collected; enough for a prize in each of the 154 public schools in the Territory.

Following the efficient lead of Mr. James C. Davis, then Superintendent of Public Instruction—to whom is really due the credit of getting the Arbor Day celebration actually under way—the teachers and pupils of Hawaii rose to the opportunity. This was well shown by the number of requests for trees for Arbor Day planting received at the Government Nursery. Boxes of plants were sent out to 95 schools, while it is known that many others obtained their trees locally. At the time this article was written the exact number of schools entered in the contest was not known, save that it was over two-thirds of the whole.

The exercises varied in the different schools. Music and recitations alternated with brief talks about the origin and history of Arbor Day, while in all the schools emphasis was placed on the building up of the true Arbor Day spirit which not only leads to the planting of trees, but to the subsequent care of them, a matter

far more essential to success. Naturally school-ground planting is largely for ornamental effect. The next step will be to plant shade trees along the roads leading to the schools and so gradually throughout the district.

Besides the public schools many private schools, individuals and associations took an active interest in Arbor Day and its observance. At the Kamehameha Schools public exercises were held and class and other trees planted. Oahu College was prominent in shade tree planting along the streets of the College Hills Tract, where the work was begun of making more attractive by tree planting that already desirable section. On the other islands the tree planting at Mooheau Park, Hilo, and in the Public Square at Lahaina, deserves special mention, but everywhere throughout the Territory the day was observed and many trees and shrubs were planted.

As a part of the Arbor Day celebration in Honolulu, although the actual work was done later, record should be made of the planting of shade trees by the Waialae, Kaimuki and Palolo Improvement Club. Combining the Arbor Day spirit with the celebration of Thanksgiving, the streets in the above named districts were planted on November 30, an act which in later years will be a fitting cause for Thanksgiving by the residents of that section.

Altogether the celebration of the first Hawaiian Arbor Day was a great success. Teachers, pupils and citizens may well be proud of what was done on that day, for it is by such observances as this that the spirit is aroused that leads not only to the beautifying of the Territory, but to its general upbuilding.

A CREDITABLE PRODUCTION.

THE Hawaiian Sugar Planters' Association may justly be proud of the exhibit by its Experiment Station Committee of the progress made by their staff of scientists in their investigations, as shown in the "Report and Yearbook for the year ending September 30, 1905." It is a revelation to find the efficiency with which the Association has equipped their Experi-

mental Station in this city, and learn that its corps of scientists embrace professors of world-wide fame as foremost in their several specialties, the result of whose labors and investigations of the past year are clearly set forth in the various reports of the several divisions, and gives evidence of Hawaii possessing the foremost station of its kind in the world.

This report appearing just as the *ANNUAL* closes affords opportunity for little more than to note its scope, though the book richly merits an extended review.

The work opens with the report of Committee on Experiment Station, which deals with its organization and publications; the division of agriculture and chemistry in laboratory work, propagating canes from seed, establishment of sub-stations and bulletins issued; the division of entomology in the investigations in cane leaf-hopper work and its results and publications thereon, and staff appointments, and the new division of pathology and physiology as to its organization and staff, buildings, construction therefor, program of future work, bulletins issued, experiment field, apparatus and methods for its use, by W. M. Giffard, chairman; E. D. Tenney, G. M. Rolph, Experiment Station Committee, 13 pp., the whole well illustrated with half-tones and engravings.

Then is presented the result of the year's work in each of the three divisions in the shape of appendix reports and inserts by the several directors in the following order:

Appendix I—Report of Division of Agriculture and Chemistry, dealing with laboratory work, weekly mill reports, field work, sub-stations, bulletins of the division, business of the station and staff, by C. F. Eckart, director.

Appendix II—Report of Division of Entomology, describing the mission to Australia and Fiji in search of parasites to cane leaf-hopper, distribution of beneficial insects, inspection of plantations as to the leaf-hopper and cane-borer, visit to other islands,

work at the station, publications, and library, by R. C. L. Perkins, director.

Appendix III—Report of Division of Pathology and Physiology with illustrations descriptive of the microscope room, camera lucida, dark room, illustration room, camera lucida for natural size or reduced drawings, liberal reduction of original drawings and experiment field, by N. A. Cobb, director.

Inserts: Comparative analyses of varieties of cane, by C. F. Eckart, 20 pp. Field experiments with sugar cane, by C. F. Eckart, 17 pp. Irrigation experiments of 1905, with illustrations, by C. F. Eckart, 17 pp. Fertilizer experiments, 1897-1905, by C. F. Eckart, 57 pp. Leaf-hoppers and their natural enemies, parts I, II, III, IV and VI, by R. C. L. Perkins, and part V, by F. W. Terry. in all. 205 pp., with 13 carefully engraved plates showing numerous illustrations. Inspection and disinfection of cane cuttings by N. A. Cobb, 35 pp., with eight plates of illustrations. Preliminary notes on root disease of sugar cane in Hawaii by L. Lewton-Brain, 35 pp., freely illustrated. Gumming of the sugar cane, by N. A. Cobb, 40 pp., freely illustrated; each bulletin in this division being well indexed.

Appended to the report for 1905 is given a revised reprint of the previous year, with several full page half-tone illustrations, whereby the comparative progress of the important experimental work of the station may be readily seen.

The engravings throughout the report were all executed at the Station and is another evidence of the high ideal directing its various departments.

RETROSPECT FOR 1905.

The victory which crowned the Republican party banners in the fall election of 1904 throughout the islands, as shown in the last issue, can hardly be said to have resulted in any glory to the party, nor credit to the legislators for their work of the session of 1905 that we had the right^{ly} expect. Nor was the majority of native members the cause of failure to realize the hopes that had been indulged in, either as to brevity of session or evidence of statesmanship in beneficent laws to meet the peculiar conditions existing here. The claim of a less expensive session than several preceding ones, and the absence of graft may be admitted, but it is small comfort to taxpayers and underpaid teachers and others in the public service that sessions are doubled without adequate returns, and legislative servants are voted more than they could command for like duties in any line of business in the country.

The spirit of antagonism to the executive wasted valuable time and saddled several undesirable laws upon us where personality largely prevailed, notably the loose Sunday law, and the pernicious liquor bill, introduced by the administration in the liquor dealers' interests, in both of which the promoters obtained their cue of government leanings from executive utterances and support from members hitherto credited with higher principles. Petitions and protests by the heavier tax paying and law abiding element of the community had no weight whatever except to hasten action to effect a defeat of higher hopes.

During March there was considerable agitation on the Sunday question and mass meetings held against change of the then existing law, at one of which the governor presided, and publicly admitted his responsibility for the stir created. Petitions and delegations followed, both before him and the legislature, against the bill proposed, and of course a like effort in its favor, and though it subsequently received his veto it was ignored and became law in the interests of small store-keepers and baseball players, or money seekers and holiday makers. To

the surprise of many the liquor bill vetoed once, and sustained, was reintroduced with some unworkable features eliminated, and hurried through without reference to committee, became law with his approval.

The County Act naturally occupied much time, despite the labors of the special committee in its preparation, and finally passed with such crudities as secured its veto, but this was overridden in a very defiant spirit and an additional act passed to remedy some of the defects pointed out in the governor's veto message.

A summary of the work of the regular session in its enactment of laws and their disposition, shows 124 bills passed altogether, of which 103 became laws. There were fourteen vetoes, of which nine were sustained and the following five overridden, viz.: the Sunday law, the County act, the enabling act for same, the Hilo high school bill, and the bill arranging terms of court for the island of Hawaii. Fourteen bills met with a pocket veto.

COUNTY ELECTION CAMPAIGN.

As the time of election for county officials under the act approached, a test case as to its constitutionality was brought before the Supreme Court and its validity unanimously maintained. Thereupon the political campaign proceeded with vigor and much antagonism. The participation of Governor Carter against the Republican party nominee for sheriff on the Oahu ticket was for reasons published, hence, as a result of his election the governor tendered his resignation to the President, a step that met with much protest by the several bodies representing the business interests of the Territory, which, however, he was induced to recall upon his visit East upon his meeting with the President.

The special County Act campaign, though brief, was more vigorous than usual, and a valuable precedent on two important points established, viz.: that a party ticket does not necessarily bind voters blindly to support objectionable candidates. In order to secure straight party ticket votes there must be no crookedness in methods or men. In recognition of this principle the

recently formed Civic Federation entered its protest against certain names on the Republican ticket and selected others, irrespective of party, that would better serve the interests of the public. Though partially defeated, it nevertheless carried weight on its first public exercise as a body to be reckoned with in future nominations.

On this, and parts of the other islands, a fusion of Democrats and Home Rulers was effected, to defeat the Republican ticket, but it barely succeeded only in a few instances.

The County Act went into effect July 1st, 1905, according to law and has had material assistance from the Territorial officials to smooth its inauguration in the public service. And though there are not a few crudities in the law, there has been less friction, so far, than was anticipated in its working. Yet for what? To multiply offices and opportunities for politicians, and increase taxation in a diminutive territory that long ago was ridiculed by Mark Twain who likened the official machinery of Hawaii to that of the Great Eastern in a sardine box.

PUBLIC IMPROVEMENT.

Early in the year was completed the long projected garbage crematory for the disposal, daily, of the city's refuse by a patent and sanitary process. It is located on the shore of Kakaako, adjoining the sewer pumping station; is two stories in height and built of brick. On the ground floor are six incinerators of the Thackery patent, enclosed with brick, of a capacity judged sufficient to serve the city's needs for many years to come.

The Federal government has erected a commodious two-story structure abreast of the channel wharf specially designed to meet the requirements of the Immigration service at this port. The new station is built on piles on reclaimed land that is being filled in from the coral dredgings that is going on, and is gradually taking on a tropical appearance. The building is well arranged in its several offices and divisions for convenience, comfort and expedition in all departments of the service.

Adjoining its premises on the mauka side is the new building designed for the Planters' Association for their labor bureau.

The Royal School building mentioned in last ANNUAL as nearing completion was finished early in the year and the school officially opened March 3rd, 1905, by Superintendent of Public Instruction Atkinson, with an historic address. During the year there has been erected on the front slope of Punchbowl, at the corner of Lunalilo and Hackfeld streets, a commodious two-story brick building for a Normal school, having sixteen class rooms and an assembly hall, with a manual training building connected therewith. Its opening occurred September 11th. On the various islands over forty school houses and sixteen teachers' houses are in progress or contracted for.

The Electric Light station in Nuuanu valley has had recently completed a new substantial brick building for its power house to meet the increase in efficiency that will be required of it when the new reservoir water supply becomes available.

The new archives building in the executive grounds, also of brick, is nearing its completion as to outward appearances, though it will be several weeks before the internal fittings will be through with. The structure is of neat classic design, one story in height and fire proof in its character.

A number of new roads have been constructed and improvements in changing grades and relocating portions of the main belt roads of the different islands. The extension of road in the Nahiku-Keanae districts of Maui, through a rough country, is about finished, as also the Kalihiwai-Hanalei road on Kauai. A 60 feet extension of School street Ewa-wards of Liliha is partially finished, as also roads leading into Manoa and Palolo vallies.

Federal work on the Kahauiki reservation has at last begun, and as a consequence, for the convenience of travel, the Rapid Transit Co. have extended their Kalihi section of road to the valley this side of Moanalua.

The constant tax upon the harbor and wharf capacity of the port is to be relieved in the near future as work in both divisions is in progress by both the Federal and Territorial governments. Dredging of the new wharf at the foot of Alakea street by cutting into the Esplanade and blasting out the coral bed is rapidly

progressing, as the work, costing \$168,000, is to be completed in January, 1906. Plans are also prepared for a new one adjacent to the naval docks, and dredging a slip at the foot of Kilauea street to make available both sides of afore mentioned dock. The new wharf at the foot of Fort street is completed, but the Brewer wharf work still hangs.

The new Petroleum Gas plant for fuel and lighting purposes has been established with works at Iwilei. Work was sufficiently completed and city pipes laid by June 1st that lighting was inaugurated June 3rd, 1905.

An important extension has been made at the Queen's Hospital by the addition of the new Pauahi wing recently completed at a total cost of \$63,766, toward which Chas. R. Bishop gave \$35,000.

Kahului harbor improvement is being undertaken by the private enterprise of the Hawaiian Commercial & Sugar Co., in the erection of a 400-foot wharf fronting the water, and port dredging to include a 30-foot depth to the channel for its shipping accommodation.

The work of dredging for deepening and enlarging our harbor and its entrance has recently been entered upon, the successful bidders being a coast firm which has brought down a sea-going dredger especially for the contract in hand. Its powerful machinery is of the suction type; the other dredger, constructed here by Lord & Belser, also of large capacity, is of the dipper class.

REAL ESTATE AND BUILDING.

Again we have to note a year of inactivity in the real estate market. The records show fairly well as to the number of property transfers from month to month, but few of which are up to assessed value. Several fine residence parcels have changed hands at sacrifice figures, and heavy foreclosures have failed to realize the obligations, as last year. Rents have moderated, yet houses and stores lie idle. Among the best sales of the year may be said to be the Gilman residence, in the Makiki district, and the Chilton building on the corner of Fort and King streets.

This lethargic condition of the real estate market naturally effects the building trade; what activity exists seems confined to the suburban College Hills and Kaimuki districts. In the former the new residence of Dr. W. D. Baldwin shows prominently as the finest structure erected here for several years past. Three or four other houses in this section are about completed. On what was "the plains" district a few dwellings are in progress, the McStocker residence, on Lunalilo street, being the most notable.

WEATHER CONDITIONS.

The islands as a whole have enjoyed a year of remarkably uniform weather, with a fairly well distributed rainfall excepting in a few localities. Last winter, or more properly the rainy season, (which was a light one,) gave us a spell of lower temperature than usual that was an enjoyable change. Following this, high winds and heavy weather prevailed for a time, but not to the extent of material damage to our coasting or agricultural interests such as was experienced the previous year. April took the place of March as the windy month, and averaged a higher velocity than any other month of the year.

BUSINESS CHANGES, ETC.

For the better protection of the rice industry of the islands, which has suffered much of late, the principal growers of, and dealers in, this commodity formed a corporation the early part of the year under the name of the Rice Growers & Factors' Association, with its principal office on the Ewa side of Nuuanu street near Queen.

Parties representing the majority of Sugar Plantation Agencies of the islands have also concentrated their interests under a superintending and protecting corporation for the marketing of our sugars, known as the Sugar Factors Co., Ltd., with capital of \$3,000,000.

J. M. Levy & Co., importers and dealers in California fruit and produce, have extended their business and opened a well fitted grocery store in the Waity block, on King street.

The Pearson & Potter Co. has merged with the J. A. M. Johnson Co., the latter concern moving into the former's Fort street premises.

Owing to the removal of the stone building on the water front, for some time past occupied by the California Feed Co., they have moved into the Queen street portion of the Honolulu Iron Works premises.

Among the new concerns established is to be noted that of the Thayer Piano Co., recently opened in the Oregon block, on Hotel street, and the J. Carlo Pawn Broking Co., on Hotel street, near Union.

Through purchase of the Kunst and Cooper interests in the First National Bank of this city, by Jas. B. Castle and the Castle Estate, Mr. W. G. Cooper retires as cashier and has been succeeded by Mr. L. Tenney Peck.

The amalgamation of the Wilder's and Inter-Island Steam Navigation Co. was consummated this past summer, under date of July 1st.

J. A. Hopper Co.'s mill business, established for the past 33 years on the Ewa side of Fort street, below Queen, have vacated their premises, razed their brick buildings and moved into the three storied brick warehouse they built a few years ago on Halekauwila street, opposite Hackfeld & Co.'s, storing their machinery until securing proper quarters for erecting same.

OFFICIAL CHANGES.

The principal official changes for the year embrace the following: Hon. F. M. Hatch resigned as Associate Justice of the Supreme Court on account of ill health, and was succeeded by Hon. A. A. Wilder.

Hon. A. Lindsay was promoted from the Police Court to succeed Hon. G. D. Gear as Second Judge of the first circuit, whose term of office expired; Hon. W. L. Whitney succeeding as District Magistrate.

A. T. Atkinson, Superintendent of Public Instruction, resigned, was succeeded by Jas. C. Davis who in turn resigned recently and has been succeeded by W. H. Babbitt.

Jos. M. Oat, whose term of office as Postmaster at Honolulu expired, is succeeded by Mr. Jos. G. Pratt. In Hilo, Geo. Desha succeeds Wm. I. Madeira as postmaster.

Dr. Chas. A. Peterson succeeded the late Dr. H. C. Sloggett, as Superintendent of the Insane Asylum.

Lorrin Andrews, moved to Shanghai, has been succeeded as Attorney General by E. C. Peters, his deputy.

DISTINGUISHED VISITORS.

The islands have been specially favored during the year by the number of prominent personages that have visited us, a number of whom Honolulu was delighted to honor. Many of them simply touched en route to or from the Orient, like "ships that pass in the night," while others have enjoyed the opportunity for rest and investigation that promises much for the interests of Hawaii. The visit of the Taft party, brief though it was, will long be remembered by us who entertained and crowded the day with sightseeing and special entertainment, and they who expressed themselves as having had "the time of their lives," not the least enthusiastic of whom was Miss Alice Roosevelt.

John G. Woolley, the noted temperance worker, made a timely visit early in the summer and delivered several strong addresses, as usual.

Rev. Dr. Ostrom, with his famed singers, Messrs. Hillis and Butler, came to aid in revival work, remaining about four weeks.

A sad mission brought Dr. David Starr Jordan and Timothy Hopkins for a short visit.

Dr. Wyman, Surgeon General of the U. S. Marine Hospital Service, visited here to select a site for the leprosarium to be established by the Federal Government, for which an appropriation of \$100,000 was made.

Hon. W. P. Hepburn, chairman of Ways and Means Committee of the House, made an enjoyable stay of several weeks, during which he gave two public addresses that were much appreciated. He made close enquiry into the needs of the Territory. F. P. Sargent, Commissioner of Immigration, as also Victor S. Clark, of the Bureau of Labor; Chas. P. Neill, Labor

Commissioner, and Dr. Walter Evans, chief of the Division of Insular Stations, Department of Agriculture, all made investigations while here in their various lines of enquiry, which will doubtless prove to our advantage. O. P. Austin, chief of the Bureau of Statistics, Washington, a strong friend of Hawaii and promoter of its diversified interests, touched here en route from the Orient.

Of scientists and professionals we note Dr. C. H. Hitchcock, the eminent geologist of Dartmouth College; Prof. Perkins, State Geologist of Vermont; Prof. W. H. Pickering, of Harvard College Observatory; Geo. C. Curtis, Geologist of Museum staff, Harvard University; Henry G. Bryant, President of the Philadelphia Geographical Society, as also Col. Church, Editor Army and Navy Journal, all making trips of observation in various parts of the islands.

Others simply passing through were Admiral Montt, ex-president of Chile, and party; President E. H. Harriman, of railroad prominence, and Manager R. P. Schwerin, of the Pacific Mail S. S. Co., and Wm. Jennings Bryan, the prominent Democrat and leader. Prince Ferdinand of Savoy visited here as lieutenant on the Italian war vessel *Calabria*, en route to the Orient.

FOREST FIRES.

A raging forest fire of unknown origin prevailed in the forest of South Kona, Hawaii, chiefly in the ohia belt of Kaapuna, on government and private lands in February and March. It started near the road and burned several miles inland and two miles wide at the upper end. Some 60 or 70 men were engaged in fighting it before all danger was overcome.

About the same time a serious forest fire swept a considerable section of the Bishop Estate lands in North Kona, doing much injury before it was finally subdued.

Olaa had a brief experience of like nature. On Oahu, Wahiawa this past summer had a hard fight on its hands in combating a forest fire that threatened serious consequences. With the combined help of the colony, adjacent ranch, Waialua plantation, and government aid from this city, together engaging

some 500 men, their strenuous efforts, after several days' work, overcame the danger.

A grass fire in Kalihi hills also occurred during the summer, but by prompt action was early extinguished.

RECORD PASSAGES.

Among the arrivals during the year, the most notable passages are the following: The bark R. P. Rithet distinguished herself by a record trip of eight days from Honolulu to San Francisco in March last, and a little later the ship John Ena at Hilo, from Shanghai, was reported to have made the passage in the extraordinary run of 22 days.

In July the S. S. Manuka of the Canadian-Australian line, made the run from Sydney to this port, including stoppages at Brisbane and Suva, in 14 days, 17 hours and 12 minutes.

In August the P. M. S. S. Siberia reduced the record time from San Francisco to Honolulu to 4 days, 19 hours and 20 minutes.

DIVERSIFIED INDUSTRIES.

The advocates of diversified industries have much encouragement in the tangible support to their theory of multiplying our possibilities from the showing made during this past year in the various products that have so far claimed attention, as may be gathered from our opening article, "Lessons from our Customs Tables," page 43. Additional thereto we note the establishment of rubber culture on the island of Maui, an entirely new industry, entered upon with enthusiastic confidence and on a scale that will announce itself as soon as the trees are of sufficient age to tap.

The satisfactory growth of a number of rubber trees set out at Nahiku a few years ago by Mr. Hugh Howell proved it as eminently suited to that locality. Early in this year the Nahiku Rubber Co. was formed, to secure the desirable tract of that section and enter upon its planting on a liberal scale. Incorporating with a capital of \$150,000 (all the stock of which has been taken up), the work has proceeded under the management of

R. H. Anderson, of practical experience in rubber culture in Mexico. One of the principal stockholders of the concern made a visit to Ceylon in the interest of the corporation to study varieties, methods, etc., and to procure the best seeds and plants, the result of which he has generously made public. Many seeds and two shipments of plants have been received by the company with which to early plant their entire tract.

The Koolau Rubber Co., also on Maui, has been formed by Messrs. Howell, Coke and others, to plant on land of Judge W. A. McKay, under the care of C. O. Jacobs. Another concern is reported contemplating like enterprise on the other side of Oahu.

The sisal industry has about doubled its returns in choice product this past year, and is finding material in its refuse, when properly treated, for mattresses, with the prospect of utilizing the remainder for paper making. This is encouraging to the new ventures in the field, of which two are reported this year, one of 500 acres being set out in Kona, Hawaii.

Extensions in pineapple culture and the canning industry continues; the output this year having doubled that of last year, reaching 40,000 cases of two dozen each, and the outlook for 1906 promises to double again this figure. Kauai has entered upon extensive planting and will establish a cannery in connection therewith, and there has been some talk of Hilo doing likewise.

Coffee is reported to be producing heavily this season in the various districts. Kona, however, will not be able to reap full advantage owing to scarcity of labor to gather it. Louissou Brothers' plantation in Hamakua has 300 acres planted to Guatemala trees, of which 200 are bearing.

The banana trade of this island has felt severely the interruption to regular shipping opportunities, while that of Hilo is said to be in a bad way, largely the result of packers' cupidity.

The growth of our honey trade is very satisfactory, exports to London calling this year for 2,000 cases. Molokai recently sent down 764 cases toward it. Kauai also shares in the apiary product, the output of the Garden Island Honey Co.

Island mango chutney is a new industry by Mrs. Kearns, that is rapidly making a name for itself, orders from abroad for its supply to the Pacific Mail and other steamers and for shipment, as also a steady local demand gives it a bright outlook.

Experiments in tobacco culture, under instructions of Jared G. Smith, of the Experimental Station, is progressing satisfactorily. The Hamakua station has $2\frac{1}{4}$ acres planted in Cuban, Sumatra and Vuolta bajo varieties. The planting at this place is at an elevation of 1500 feet, the manager reporting that it is not necessary to grow it under cover as in Cuba, to obtain a thin leaf, as ours are such without resort to artificial means to make them so. A station has been started at Pahala, in Kau, a half acre planted in May from seed and set out in latter part of July was ready for harvesting the latter part of October. This planting is at an elevation of 1850 feet.

Some attention is being given to the growth of Manioc cassava, or Tapioca starch, in certain parts of the islands; Mr. Koeling's fields at Koolau enables him to market about fifty bags a month.

Samples of silk cocoons raised at the Experimental Station where 20,000 worms were industriously at work in May is solving the problem as to the future prospects of another new industry for us. A San Francisco capitalist offers to put money into such a project rightly established.

Much encouragement is given toward the establishment of the koa lumber mill to locate near the Volcano house on a five-year lease from the Bishop Estate of 4,500 acres.

WATER WORKS EXTENSION.

April witnessed the completion of the newly constructed reservoir by Kearns and Lishman, at Kalihi, situate on the hill slope at some 370 feet elevation, for supplying the pressing needs of that section of the city. It has a capacity of 3,000,000 gallons and is supplied with artesian water through an 18-inch main from the King street pumping station, adjoining the Kamehameha school grounds.

New 18-inch mains have been laid from reservoir No. 1, in the valley, to Beretania street. Other parts of the city have also had larger mains replace those hitherto in use.

Plans are completed and work is already begun on the new Nuuanu storage reservoir, of a capacity of 450,000,000 gallons, and a maximum depth of fifty-five feet. When full this reservoir will cover an area of about fifty acres.

WATER DEVELOPMENT.

Work on the Kohala ditch to convey waste waters from the Hamakua district is being pushed forward; everything progressing satisfactorily so far, though the amount of tunneling found advisable has exceeded the estimate. Some 700 men are engaged in the work, the tunneling shifts working day and night, with the prospect that water will be delivered during the summer of 1906. The ditch is being treated throughout to prevent seepage and the estimated loss by evaporation will not exceed two per cent.

On Maui, the work on Wailuku's water scheme, is meeting with success, the tunneling already furnishing a supply beyond the expected estimate for the time engaged and distance run.

Work on the Wahiawa Dam is progressing rapidly toward completion; it is practically finished in fact, though the tunnels to convey its water to the Waialua fields will require several weeks to complete, as it is all hand drill work through solid rock, progressing but eighty feet per month.

The Kauai Electric Co., Ltd., is developing a water system at Wainiha to convey water from the Wainiha stream on the north side of the island by ditch and tunnel to the head of a pipe line giving a head of 560 feet where two generators will be installed to transmit power that is to be conveyed to the McBryde plantation for its pumping stations and other uses. At present one and a half miles of ditch and three miles of tunneling have been completed, and the whole work will be finished by June, 1906.

PLANTATION MATTERS.

Under sugar machinery inventions we note patents by Max

Lorenz secured for a process of macerating cane, claimed to be one of the most valuable improvements to sugar machinery for some time, and also for intermediate apron conveyors for sugar mills.

Following the introduction of the cane loading machine, a new invention as a labor saving device in a cane cutter and harvester has been brought to notice and a practical test made of its principle at the Honolulu plantation which met the inventors' claims for it. A full sized machine is now being constructed to place upon the market. Should these two labor saving devices come into general use the labor problem of our plantations will be materially relieved.

Labor strikes have given no little trouble this past year, confined with one exception, to the restless Japs, notably at Lahaina, Wailuku, Paia, and Olaa, the latter two not serious. All of them however were trivial in their alleged cause and in due time was overcome.

The Sugar Factors Co. has recently secured the controlling interest in the Crockett Refinery, San Francisco, with the view of utilizing such portion of the annual output of raw sugars for the Pacific Coast trade as they may desire to reserve from shipments to the eastern market up to 150,000 tons, as per contract with the eastern Sugar Trust. The agreement heretofore existing between the Hawaiian planters and the Spreckels refinery expires 1905, and this new step is taken with the view of materially strengthening Hawaii's sugar interests.

The Honolulu Plantation, in addition to refining its own sugar, as done this past season, it is reported that it will refine the product also of the Hutchinson Plantation, of Kau.

EXODUS OF JAPANESE.

There has been quite an exodus of Japanese from the islands during the year, partly the calling in of reserves through the late war, partly the demand for labor at Panama, and in California and Oregon during the fruit season. The natural restlessness of the race afforded designing parties occasion to scheme for their movement by the hundreds, and sought special vessels for

their emigration. Through official aid at Washington the plan to recruit labor here for Panama canal work was frustrated, notwithstanding, some 2,500 are reported to have left for San Francisco and Seattle in April, and quite a number since.

This, with the restrictions by the Japanese government as to the number permitted per month to come here, naturally affects us both in plantation and domestic service.

SHIPPING CASUALTIES.

Schooner *Lavinia*, Weisbath master, returned to this port Jan. 1st, 1905, many days overdue from her cruise to Palmyra Island, having met with a series of gales while there which carried away all deck movables, anchors and chains, and nearly wrecking the vessel.

Schooner *Ariel*, coal laden from Newcastle, arrived Jan. 2nd, having experienced considerable damage in a gale off New Zealand, which carried away the gaff-topsails and smashed two boats.

A number of arrivals up to March reported like heavy weather, with damage to sails, rigging, etc. Barkentine *Archer*, from San Francisco, with cargo for this port, was obliged during a heavy gale, March 11th, to sacrifice the larger part of her deck load of ties, etc.

Schooner *C. Kennedy*, Schlemmer, master, which left Honolulu Feb. 9th for Laysan and Midway Islands with stores, was cast away on the former island by stress of weather, March 3rd; the vessel and boats becoming total wrecks, with but a small portion of stores and no personal effects saved. Her officers and crew were rescued by the U. S. Gunboat *Petrel* on March 23rd, en route to this port from Midway, arriving March 26th.

Br. bark *Don*, from Iqueque, with cargo of phosphates for this port and Victoria, B. C., grounded for a few hours off Diamond Head, April 30th, but was hauled off by the tug on a rising tide without much difficulty, and little or no damage.

Bark *Martha Davis*, at anchor in Hilo bay, Hawaii, took fire on the night of May 13th, and burned to the water's edge; origin

of fire unknown. A portion of the cargo had been landed, but all plantation freight was destroyed.

Schooner *Chas. Levi Woodbury*, leaving here early in May for Midway Island with stores, etc., in tow of the *Iroquois*, separated in a gale off Kauai, and the supercargo, Clark, was lost overboard. In a subsequent trip to Laysan she met with heavy weather, in which sails were carried away and the vessel badly battered. Fears for her safety was felt as she became long overdue, but returned to port Sept. 3rd, with the above report of mishaps.

Schooner *Matthew Turner* arrived July 5th with 26 men from the Norwegian barks *Victor* and *Salamis*, which dragged their moorings and were driven ashore on Malden Island during a storm on May 19th and became total wrecks. Both vessels were loading guano at the time.

Ship *Spartan*, 1335 tons, Flynn, master, coal laden from Newcastle for Lahaina, went ashore $3\frac{1}{2}$ miles N. E. of Kahului, Maui, Aug. 19th and became a total loss. The tug *Fearless* from Honolulu made a brave attempt to rescue her, but failed to make an impression as a N. E. gale was blowing at the time. The vessel and her cargo was sold for \$400, and her coal has been gathered by Japs as the vessel gradually broke up.

Steamship *Alameda*, leaving San Francisco Sept. 30th for this port, went on the rocks off Fort Point in a heavy fog. Prompt assistance was rendered to extricate her from her perilous position and with powerful pumps to overcome the inrush of water from her punctured condition and the aid of several tugs she was finally hauled off and towed to her berth on Oct. 6th. She was at once placed in dock for repairs, which were executed by the Union Iron Works at an expense of about \$30,000.

October 24th. French ship *Ernest Reyer*, coal laden from Newcastle for this port, ran aground off Diamond Head at 2:20 A. M. With the combined effort of the tug *Fearless* and steamers *Likeliike*, *Niihau* and *Lehua* she was hauled off on rise of the tide toward noon and brought into port; sustaining little damage. Claims to the amount of \$45,000 were filed against the vessel which was subsequently compromised for \$8,250.

ERRATIC KILAUEA.

Kilauea has indulged in a season of successive changes this past year that has maintained a spirit of expectant interest since its outbreak of activity, February 21st, 1905. As though this return of volcanic life was an error of judgment on Pele's part she banked her fires in the middle of March, then broke forth again a few months later with her old time energy.

This coquettish demeanor has continued along up to the present writing, and has afforded intense interest and satisfaction to a steadier stream of tourists and resident visitors than ever before.

As to the changes effected in the crater by this year's activity, we learn that the pit of Halemaumau has gradually filled so that it is now but about 400 feet deep, and at times when the wind clears it of smoke, the boiling, surging lava is clearly seen.

BINGHAM MEMORIAL TABLET.

On April 19th, 1905, was unveiled, at Punahou, the Bingham Tablet commemorative of his gift of the college grounds in 1840, to the cause of Christian education in these islands. The tablet, executed in bronze and embedded in a large boulder of rough lava rock from adjacent Rocky Hill, is erected on the site of the cottage home built by Rev. Hiram Bingham in early years, but long since demolished to make way for the successive changes that have developed Punahou.

The occasion had additional historic interest in the fact that it was the eighty-fifth anniversary of the landing of Rev. H. Bingham and associates, the pioneer band of American missionaries on the shores of Oahu.

REVIVAL SERVICES, ETC.

Religious revival services began in this city last April, which was materially promoted by the arrival on May 3rd of Dr. H. Ostrom, with his singers, J. P. Hillis, chorus leader, and Fred Butler, soloist. These services were largely attended and growing interest manifested to its close, May 28th.

St. Elizabeth House and Chapel, the gift of Mr. Proctor, of Cincinnati, was erected at Palama, and opened May 7th by Bishop Restarick, largely through the labors of Deaconess Drant in the Hawaiian-Chinese district.

The Seamen's Institute has been moved from its water-front location to spacious quarters occupying the second floor of the Castle & Cooke building, on King street, a portion of which is assigned to, and fitted for, chapel purposes, which was dedicated September 17th by Bishop Restarick. Episcopal services will be held regularly each Sunday hereafter at the usual hours.

MRS. STANFORD'S DEATH.

The sudden death of Mrs. Jane L. Stanford on February 28th, 1905, at the Moana Hotel, in this city, was a severe shock to the community, and deep sympathy was expressed for such a suffering end of so noble a life of self-sacrifice as was hers, so real was her impression that she had been poisoned. A coroner's jury rendered a verdict of "felonious poisoning by person unknown." But opinions differed widely then, many inclining with Dr. Jordan and Mr. Hopkins, who, after careful investigation, published their belief that death was from natural causes, and nothing so far has been found to change this view.

Impressive funeral services were held in Central Union Church on March 15th at 8 A. M. and the remains borne to the steamer *Alameda*, for interment in the Stanford Tomb.

WAIKIKI ATTRACTIONS.

A surf riding fiesta at Waikiki, illustrating canoe, boat and board practice, was inaugurated March 20th, and greatly enjoyed by a throng of participants and spectators at the Moana and the Hotel Annex, though the day was too fine for high surf and its attendant excitement.

Honolulu had its first cowboy exhibition of lassoing cattle and other feats of horsemanship on October 21st, 1905, at Kapiolani Park, which was witnessed by an unusually large crowd of people, and though gotten up on short notice, proved so suc-

cessful as to engender the hope that inter-island contests of this character may become one of the annual attractions of the city hereafter.

ARBOR DAY INAUGURATION.

Arbor day was inaugurated in this Territory on November 3rd, 1905, for observation by the various schools of the Territory, as shown in a paper elsewhere on the subject in this issue. Much interest was manifest therein throughout the islands and, though late in thus responding to what has oft times been suggested for the beautifying of many a barren and unsightly locality, it will well repay the effort.

CITY IMPROVEMENT.

A movement for the general improvement and beautifying of the city of Honolulu took definite shape on November 28th at a joint meeting of the Promotion Committee and a number of leading citizens to forelay the work of Mr. Robinson, the expert, who has been called here to advise and suggest a park system. An advisory committee was formed with W. M. Giffard as chairman and R. S. Hosmer as secretary, to aid the various sectional improvement clubs organized about the city for tree planting, remedying fence and other property disfigurements, etc. The Kaimuki and Kalihi Improvement Clubs may take courage at the catchy influence of their good work in early organization.

In this spirit the ornamentation of the city front, from Brewer's to the Inter-Island wharves, with its three oasis of tropic shrubbery to relieve the bareness of space through the removals of old structures, and the green swarding of several hitherto neglected vacant plats in and about the city may be said to be the forerunner.

ANTI-GAMBLING CRUSADE.

The *Advertiser* has been making a single-handed battle against gambling and the gambling dens that have been flaunting themselves defiantly in this city for some time past, some openly and others behind barred doors and windows, two of which have been

run to earth and the principals convicted. The expose of these established institutions, known to many, naturally reflects seriously upon the police, or the police system, that makes this condition of things possible.

Kauai is also doing good work for the suppression of the evil.

NECROLOGY RECORD.

Since the close of our last record the dread reaper has claimed quite a number from the community, among whom the following older or prominent residents of the islands, or identified with its interests, may be noted, several of whom passed away in other lands, as herein shown. The list embraces: Captain D. Taylor, Lahaina; Frank Buchholz, Kona; Mrs. S. M. Ballou, James Olds, Mary (Pitman) Ailau, Hilo; Mrs. R. F. Engle, Paia; C. H. Willis, Hanalei; Mrs. J. H. Paty, Dr. H. C. Sloggett, Henry Hyman, San Francisco; Louis Adler, Mrs. Wilhelm, Hilo; Mrs. E. G. Beckwith, Paia; Thos. Christley, Jas. Dean, Mrs. Cordelia H. Brown, Mrs. Catherine (Fornander) Brown, Jno. K. Wilder, Dr. Jas. Wight, Kohala; Rev. Father Oliver Bogaert, Wailuku; A. W. Pearson, D. B. Peterson, Gustav Kunst, in Germany; W. N. Armstrong, at Hampton, Va.; J. K. Brown, at Stockton, Cal.; F. C. Baldwin and H. Alex. Isenberg, in New York; G. F. Carsley, of Kona, and Dr. D. Shepardson, the "wheel-chair evangelist."

FIRE MATTERS.

The city has been spared any serious fires this year, though annoyed with the usual frequency of Chinatown mishaps of which suspicions of incendiarism have been evident in several cases. In an official report to the governor for the fiscal year ending June 30th, 1905, there were forty-seven alarms for the year, of which four were false, embracing losses placed at \$45,395, with \$33,257 paid by insurance companies. Of the various causes assigned three were incendiary, and twelve were unknown.

SUNDRIES.

Fifty-four failures occurred in the Territory during 1904.

and the mortgage indebtedness for the year showed an increase over releases of \$846,317.91. For the nine months of 1905, ending September 30th, the mortgage indebtedness of individuals and firms of the Territory, compiled by Berrey's Commercial Agency, Ltd., shows an increase of \$822,114.65, and thirty-nine failures in the same period.

The transport *Solace* brought the new wireless plant for the Naval Station at this port, May 22nd, in charge of Lieut. G. C. Sweet for its installation, then going on to install a second station at Guam. September 12th the *Iris* brought completing apparatus for same and the station is now in working order.

Preliminary work has begun for the extension of the Oahu Railway to the Wahiawa Colony. The new line will branch at Waipahu to follow the Waikakalaua gulch, thence out onto the plains to the colony. The work is to be completed by July of 1906.

"The Territorial Republican Committee made promise before election to the respectable business firms of the community that it would see that the legislature enacted no law that would put the Territory to shame."—P. C. A., Apl. 18, 1905.

"The new liquor license law has demoralized the saloon business," says a dealer long in the trade, "and is rapidly being controlled by irresponsible Japanese and Chinese, the result of low license and removal of discretion on applications."

HANDY HONOLULU POINTERS.

HONOLULU the capital of the Territory, situate on the island of Oahu, embraces an area of fifteen square miles, and has a present estimated population of 40,000 souls. It has cable communication with San Francisco and Manila, and wireless communication with the other islands of this group. Average annual temperature 74°; average rainfall 37.58 inches.

It has 125 miles of streets: 24 miles of electric car service.

It has one railway connecting daily with Pearl Harbor and six of Oahu's sugar plantations.

Twenty churches, embracing nine denominations.

Two colleges, 20 public and 27 private schools, with 4290 pupils in the public schools and 3110 pupils in the private schools.

It has two electric light plants, and one petroleum gas works.

Two iron foundry and machine shops. Six woodwork and planing mills.

One marine railway, of 1000 tons capacity.

A paid steam fire department with 65 alarm stations.

Three daily newspapers printed in English.

Five commercial banks. One public library and reading room.

One museum of rarest and largest collection of Hawaiian and Polynesian antiquities.

One aquarium.

15 Fraternal societies. Four hospitals.

Two theatres. One each Y. M. C. A., Y. W. C. A., and Y. M.'s institute.

POPULATION OF THE CITY OF HONOLULU.

Compiled from the latest Census Report by Dr. A. Marques.

THE last census gave the total population of Honolulu as 39,306, 24,746 of whom were males and 14,560 females. Again 19,023 were born here and 20,283 born abroad; the races therein being represented by 23,919 Hawaiians and whites, 9,061 Chinese, 6,179 Japanese. (making 15,240 yellow,) and 147 black. In respect to nationalities among the people born abroad, we find the following: 6,842 Chinese, 5,595 Japanese and 7,846 other strangers, these last being distributed as follows: American, 2,846; Portuguese, 2,410; British, 1,107; German, 553; Pacific Islanders, 293; Scandinavian, 146; French, 78, and 2 French-Canadian; Spanish, 72; Italian, 54; other Europeans, 197, and 88 various. The number of males of 21 and over in Honolulu was 11,278, out of which 10,110 were foreigners, and 4,826 illiterate.

POSTAL SERVICE, TERRITORY OF HAWAII.

Corrected to December 1, 1905.

Frank J. Hare, Inspector in Charge.

Geo. W. Carr, Asst. Sup't. Railway Mail Service.

Jos. G. Pratt, Postmaster.

Louis T. Kenake, Asst. Postmaster; Jno. T. Stayton, Chief Clerk; Wm. McCoy, Chief Registry Clerk; F. E. Colby, Chief Money Order Clerk; W. C. Kenake, Chief Mailing Clerk; E. M. Brown, Supt. of Delivery.

POSTMASTERS ON HAWAII.

Hilo	Geo. Desha	Keauhou.....	H. L. Kawewehi
Pepeekeo	E. N. Deyo	Holualoa	L. S. Aungst
Honomu	Wm. Hay	Kailua	John P. Curts
Kawaihae.....	C. B. Wells	Kealakekua....	Miss M. Wassman
Mahukona.....	E. A. Frazer	Napoopoo	R. Wassman
Kukuihaele	W. Horner	Hoopuloa.....	D. L. Keliikuli
Paaubau	Jas. Gibb	Hookena	
Kamuela	Moses Koki	Pahala.....	T. C. Wills
Kohala.....	Miss M. R. Woods	Honuapo	
Paaunilo	Anthony Lidgate	Waiohinu.....	Anna H. McCarthy
Laupahoehoe.....	E. W. Barnard	Naalehu	Carl Wolters
Ookala.....	W. G. Walker	Hakalau	Wm. Ross
Honokaa.....	A. B. Lindsay	Olaa	John Watt
Mountain View.....	E. L. Rackliff	Papaaloa.....	Alfred C. Palfrey
Kalapana	Dan'l Kaloi	Lalamilo	W. Vredenberg
Volcano House.....			

POSTMASTERS ON MAUI.

Lahaina	Arthur Waal	Honokohau.....	R. C. Searle
Kaanapali	Franz Stark	Kipahulu	A. Gross
Wailuku.....	L. M. Vetleson	Kahului.....	R. W. Filler
Makawao.....	A. F. Tavares	Paia.....	D. C. Lindsay
Hana	N. Omsted	Hamakuapoko....	W. F. Mossman
Huelo	Wm. F. Pogue	Haiku	Jas. Lindsay
Puunene.....	H. P. Baldwin	Peahi	Geo. Groves
Kaupo.....	M. H. Kane	Keanae.....	J. W. K. Halemano
Makena.....	J. M. Napoula	Waiakoa	Joaquim Vincent
Kihei	Jas. Scott		

POSTMASTERS ON OAHU.

Aiea.....	James A. Low	Waimanalo	A. Irvine
Pearl City.....	J. P. Keppler	Kahuku	Andrew Adams
Ewa.....	Geo. F. Renton	Heeia	Frank Pahia
Waipahu.....	J. H. Travis	Wahiawa.....	L. G. Kellogg
Waianae	F. Meyer	Haleiwa	A. Waikaloo
Waialua.....	W. W. Goodale	Waikano	Sam'l Kaiwi
Laie			

POSTMASTERS ON KAUAI.

Lihue	Frank Crawford	Kealia.....	Jno. W. Neal
Koloa	A. Buchhoitz	Kilauea .....	.....
Hanapepe.....	H. H. Brodie	Kekaha.....	J. W. Cutz
Makaweli.....	B. D. Baldwin	Waimea.....	C. B. Hofgaard
Eleele	J. I. Silva	Hanalei .....	.....

POSTMASTERS ON MOLOKAI AND LANAI.

Kamalo	D. McCorriston	Keomoku	Chas. Gay
Pukoo.....	C. C. Conradt	Kalawao	Wm. Clark
Kalae	Ellen Sobey	Kalaupapa.....	J. S. Wilmington
Pelekunu	J. Kapahu	Kaunakakai	Lucy Fountain
Halawa.....	Miss Emma Kane		

POST OFFICE INFORMATION.

Office hours of the General Delivery are from 6 a. m. to 12 o'clock midnight. On legal holidays the time is from 8 a. m. to 9 a. m. On Sundays, from 9 to 10 a. m.

Hours of the Stamp and Registry Departments are from 8 a. m. to 6 p. m., and of the Money Order Department from 9 a. m. to 5 p. m.

The General Delivery is open (except Sundays and holidays) from 6 a. m. till midnight, for the delivery of mail, registering of letters and issuance of Money Orders.

Inter-Island mails close forty-five minutes before the sailing of steamers. For foreign ports the ordinary mails close one hour prior to steamer's departure.

RATES OF POSTAGE, DOMESTIC.

First class matter (letters, etc.).....	2 cents per oz. or fraction
Second class (newspapers and periodicals)....	1 cent per 4 oz. or fraction
Third class (books, circulars).....	1 cent per 2 oz. or fraction
Fourth class (merchandise—limit of weight 4 lbs).....	.....
.....	1 cent per oz, or fraction
Registration Fee (additional postage).....	8 cents
Immediate Delivery Stamp (additional to postage).....	10 cents
Postal Cards	1 cent each

FOREIGN POSTAGE.

The rate to all foreign countries except Canada and Mexico are: Letters—per half ounce or fractional part, 5 cents; second and third class matter, 1 cent for each 2 ounces or part. Postal Cards, 2 cents each.

Parcels of Merchandise, 12 cents per pound. Limit of weight, 11 pounds.

COURT CALENDAR.

The several terms of Circuit Court are held chronologically throughout the year as follows:

First Mondays in January, April and September, in the city of Honolulu, Island of Oahu; second Wednesdays in March, June and October, in Wailuku, Island of Maui; fourth Wednesday in April in the town of Kailua, N. Kona, and fourth Wednesdays in April and July, in Kohala, Island of Hawaii; third Wednesdays in February, May and November, in the town of Hilo, and fourth Thursday of November in Waiohinu, Island of Hawaii.

By Circuits the several terms are held as follows:

First Circuit—Island of Oahu.

On the first Mondays of January, April and September.

Second Circuit—Island of Maui.

On the second Wednesdays of March, June and October, in Wailuku.

Third Circuit—Island of Hawaii.

(Hawaii is divided into two Circuits).

On the fourth Wednesday of April in Kailua, N. Kona, and on the fourth Wednesdays of April and July, in North Kohala, and fourth Thursday of November, in Waiohinu.

Fourth Circuit—Island of Hawaii.

On the third Wednesdays of February, May and November, in Hilo, and on the third Wednesday of August, in Honokaa.

Fifth Circuit—Island of Kauai.

On the fourth Wednesdays of March, July and December, in Lihue.

The term of the Second, Third and Fifth Circuit Courts may be continued and held from the opening thereof, respectively until and including the twenty-fourth day thereafter, excepting Sundays and legal holidays. Provided, however, that any such term may be extended by the presiding judge for not more than twelve days thereafter.

Terms in First and Fourth Circuits may extend until the commencement of succeeding ones, but the April term of the First Circuit must not go beyond the last Saturday in June.

SUPREME COURT.

The Supreme Court, by Act 22, Laws of 1901, opens its only term throughout the year on the first Monday of October, and thereafter continues to hold sessions.

REFERENCE LIST OF PRINCIPAL ARTICLES

That have appeared in the Hawaiian Annuals, 1875-1905.

(In consequence of the frequent inquiry for various articles that have appeared in the Annuals, their time of issue, etc., with the request that an index thereto be compiled for handy reference, we have classified the principal articles published therein under their respective subjects and trust the list will prove helpful to many.—Editor.)

AGRICULTURAL.

- History of Sugar Industry of Hawaiian Islands, by T. G. T., 1875, p. 34.
History of Coffee Culture in Hawaiian Islands, by T. G. T., 1876, p. 46; 1895, p. 63.
History of Rice Culture in Hawaiian Islands, by T. G. T., 1877, p. 45.
The Hawaiian Islands as a Sugar Producing Country, by T. G. T., 1879, p. 27.
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Bureau of Agriculture and Forestry, by T. G. T., 1894, p. 92.
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 California's Participation in the Commercial Development of Hawaii, by T. G. T., 1898, p. 51.
 Hawaii's Commercial Relations, by J. T. Stackner, 1898, p. 128.
 The Financial Outlook, by A. T. Atkinson, 1898, p. 149.
 Hawaii's Early Divergent Trade, by T. G. T., 1899, p. 146.
 The Internal Commerce of Hawaii, by T. G. T., 1904, p. 51.
 The Sandalwood Trade of Early Hawaii, by T. G. T., 1905, p. 43.

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- The Transit of Venus of 1874, by C. J. Lyons, 1875, p. 27.
 Board of Education—Its Duties, etc., by T. G. T., 1878, p. 38.
 Longitude of Honolulu, by C. J. Lyons, 1879, p. 64.
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- Brief Record of the Rebellion, by T. G. T., 1896, p. 56.
- Early History of the House of C. Brewer & Co., by Jas. F. Hunnewell, 1896, p. 68.
- Hawaii's New Seal and Coat-of-Arms, by T. G. T., 1897, p. 86.
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- The Constitution, by S. B. Dole, 1898, p. 91.
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- The Passing of Hawaii's Aliis, by T. G. T., 1900, p. 86.
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- The Episcopal Church in Hawaii, by Canon Mackintosh, 1904, p. 216.

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- Hawaiian Poetical Names for Places, by Rev. C. M. Hyde, 1887, p. 79.
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- Early Constitution of Hawaiian Islands, by A. F. Judd, 1889, p. 63.
- Idolatrous Customs and Kapus of the Hawaiian People, from address of John Ii, 1890, p. 59.
- Taxation in Hawaii, by W. R. Castle, 1892, p. 63.
- Ancient Hawaiian Water Rights, by Mrs. E. M. Nakuina, 1894, p. 79.
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 Anecdote of Kamehameha I., by J. I. Dowsett, 1879, p. 29.
 Reminiscences of Theatricals in Honolulu, by H. L. Sheldon, 1881, p. 34.
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Legend of Maui Snaring the Sun, by Rev. A. O. Forbes, 1881, p. 59.

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The Story of Kalelealuaka, by Dr. N. B. Emerson, 1885, p. 30.

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Table Showing Water Developed and Expenditure for Same, Territory of Hawaii, by T. G. T., 1905, p. 164.

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- Hawaii's Labor Commission, by T. G. T., 1895, p. 73.
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First Turkeys.—The introduction of turkeys into these islands is credited to Captain John Meek, in the year 1815, who arrived that year at Kailua, Hawaii, in the *Enterprise* from Coquimbo, Chile, on a trading voyage, on which occasion Kaahumanu came on board and noticed them as never having been seen before at the islands. On going ashore she told the king of the strange birds she had seen. At daylight next morning the king came off to the ship and called out "Miki, Miki" (Meek, Meek), where are the *manu's* (birds). On seeing them he desired to take them away but was told they had been given to Kaahumanu. "No, No," said he, "I must have them," and putting them into his canoe set off for the shore.

The introduction of horses into these islands, in 1803, while a source of delight to the people at an exhibit of speed, etc., was treated by Kamehameha I. with marked indifference, and on their presentation to him, while thanking the donors, remarked that he could not see that the ability to convey a person rapidly from one point to another would compensate for the amount of food they would require.

These animals were brought here by Captains Shaler and Cleveland in the American brig *Lelia Byrd*, and were procured at San Borgia, and Cape St. Lucas, California.

TERRITORIAL REGISTER AND DIRECTORY FOR 1906.

(Corrected to December 1, 1905.)

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W. E. Wall.....Surveyor
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Jonah K. Kalaniana'ole.....
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J. Kalino, P. Pali, M. K. Nakuina.
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Organized March 18, 1901.

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 J. Wakefield, E. A. McInerny, J. G. Roth-
 well, H. F. Wichman, and J. F. Hum-
 burg, with the officers, form the Direc-
 tors.

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Representing the
 Territory of Hawaii, Chamber of Commerce
 and Merchants' Ass'n.

Organized 1903.

J. A. McCandless, Chairman; E. I. Spalding,
 A. Gartley, J. A. M. Johnson, F. C.
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 H. P. Wood.....Secretary

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 1st Vice-President.....Jno. A. Hughes
 2nd Vice-President.....R. H. Trent
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Re-organized Nov. 18, 1885.

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Organized 1903.

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LIVE STOCK BREEDERS' ASSOCIATION.

Organized March 17, 1902.

President.....L. von Tempsky
 Vice-President A. F. Judd
 Secretary A. M. Brown
 Treasurer R. W. Shingle
 Ex. Com.—E. P. Low, H. P. Baldwin, E. A.
 Knudsen, J. F. Brown.

THE FARMERS' INSTITUTE.

Organized Jan. 25, 1902.

President Jared G. Smith
 Vice-President
 Secretary and Treasurer J. E. Higgins

HOOULU LAHUI SOCIETY.

Organized, 1878.

President Mrs. D. Kawananakoa
 Vice-President D. Kawananakoa
 Secretary Mrs. Manuel Reis
 Treasurer Mrs. J. M. Dowsett

PORTUGUESE CHARITABLE SOCIETY.

Organized Sept. 1, 1902.

President J. P. Rodriguez
 Vice-President J. Madeira
 Secretary A. H. R. Viera
 Treasurer J. A. R. Viera

JAPANESE BENEVOLENT SOCIETY.

President Dr. Iga Mori
 Vice-President Y. Yamanaka
 Secretary Y. Sogo
 Treasurer Y. Uyeno
 Auditor M. Kishi

CATHOLIC LADIES' AID SOCIETY.

President Mrs. J. J. Sullivan
 Vice-Presidents
 Mrs. M. Cowes and Mrs. Jno. McVeigh
 Secretary Miss Alice Dougherty
 Treasurer Mrs. C. du Roi

LIBRARY AND READING ROOM ASSOCIATION.

Organized March. Incorporated June 24, 1879

President C. R. Bishop
 Vice-President M. M. Scott
 Secretary E. W. Campbell
 Treasurer W. C. Parke
 Librarian Miss H. Hillebrand

HAWAIIAN HISTORICAL SOCIETY.

Organized Jan. 11, 1892. Annual Meeting November.

President Dr. W. D. Alexander
 Vice-Presidents—Rev. Alex. Mackintosh, J. S. Emerson, Hon. A. S. Hartwell.

Recording Secretary Hon. W. F. Frear
 Cor. Secretary Wm. A. Bryan
 Treasurer W. W. Hall
 Librarian Miss H. Hillebrand

BERNICE PAUAAHI BISHOP MUSEUM.

Board of Trustees.

Sanford B. Dole President
 William O. Smith Vice-President
 Alfred W. Carter Secretary
 Joseph O. Carter Treasurer
 Henry Holmes, Samuel M. Damon, E. F. Bishop.

Museum Staff.

William T. Brigham, A. M., D. Sc. Director
 Wm. D. Hall, D. Ph.
 Hon. Curator of Molusca
 Wm. A. Bryan, B. Sc. Curator of Ornithology
 John F. G. Stokes Curator of Polynesian Ethnology
 Leopold G. Blackman Assistant and Acting Librarian
 C. Montague Cooke, Jr., D. Ph. Assistant
 John J. Greene Printer

KILOHANA ART LEAGUE.

Organized May 5, 1894.

President D. Howard Hitchcock
 Vice-President P. H. Dodge
 Secretary and Treasurer
 Mrs. L. G. Marshall
 Auditor Perry Pond
 Directors George Davies, A. F. Judd

HAWAIIAN MEDICAL ASSOCIATION.

Organized May 24, 1895. Annual Meeting in May.

President Dr. J. T. Wayson
 Vice-President Dr. Edward Armitage
 Secretary and Treasurer
 Dr. A. N. Sinclair
 Drs. W. E. Taylor and Geo. W. Herbert, with the above officers, constitute the Executive Committee.

DENTAL SOCIETY OF HAWAII.

Organized May, 1903.

President Dr. A. B. Clark
 Vice-President Dr. C. B. H. H.
 Secretary Dr. O. E. W.
 Treasurer Dr. T. E. Clark
 Director Dr. E. L. H. H.

HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION.

Organized June 17, 1895.

President	C. M. Cooke
Vice-President	Jno. Efinger
Secretary	W. C. Parke
Registrar	W. D. Alexander
Treasurer	W. J. Forbes

BAR ASSOCIATION OF HAWAII.

Organized June 28, 1899.

President	A. G. M. Robertson
Vice-President	W. L. Stanley
Secretary	C. F. Clemons
Treasurer	W. L. Whitney
Auditor	W. C. Parke

QUEEN'S HOSPITAL.

Elected in 1860.

President	The Governor
Vice-President	F. A. Schaefer
Secretary	Geo. W. Smith
Treasurer	E. F. Bishop
Auditor	M. P. Robinson
Physicians—	Drs. W. Hoffman, Jas. R. Judd,
Resident Physician	Dr. F. E. Sawyer
Interne	Dr. J. T. West
Oculist and Aurist	Dr. F. R. Day
Superintendent	J. F. Eckart
Matron	Miss Charlotte Tisdale
Executive Committee—	A. S. Cleghorn, F. A. Schaefer, Geo. W. Smith, W. H. McInerny, H. F. Wichman.

LEAHI HOME.

Organized April 4, 1900.

President	Alex. Young
Vice-Presidents—	W. O. Smith, C. H. Atherton.
Secretary	George Davies
Treasurer	A. W. T. Bottomley
Auditor	J. P. Cooke
Medical Supt.	A. N. Sinclair, M. B. C. M.
Asst. Supt.	H. Taylor
Matron	Mrs. H. Taylor
Trustees—	Alex. Young, J. P. Cooke, C. H. Atherton, George Davies, A. W. T. Bottomley, W. O. Smith.

SAILORS' HOME SOCIETY.

Organized 1853. Meets annually in December.

President	W. F. Allen
Vice-President	
Secretary	F. A. Schaefer

Treasurer	E. F. Bishop
Executive Committee—	W. W. Hall, A. Fuller, J. A. Kennedy.
Supt. of Home	Capt. Isaiah Bray

HAWAIIAN EVANGELICAL ASSOCIATION.

Originally Organized 1823.

Constitution revised 1863. Annual Meeting June.

President	P. C. Jones
Vice-President	W. W. Hall
Corresponding Secretary	Doremus Scudder, D. D.
Recording Secretary	Rev. Wm. D. Westervelt
Treasurer	Theo. Richards
Auditor	F. C. Atherton

WOMAN'S BOARD OF MISSIONS.

Organized 1871.

President	Mrs. D. Scudder
Recording Secretary	Miss M. L. Sheeley
Home Cor. Secretary	Mrs. J. D. Marques
Foreign Cor. Secretary	Mrs. A. F. Judd
Treasurer	Mrs. B. F. Dillingham
Asst. Treasurer	Mrs. W. L. Moore
Auditor	W. W. Hall

MISSION CHILDREN'S SOCIETY.

Organized 1851. Annual Meeting in June.	
President	W. R. Castle
Vice-President	C. H. Cooke
Secretary	Mrs. R. W. Andrews
Recorder	R. W. Andrews
Treasurer	L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting in April.

President	C. J. Day
Vice-President	Geo. S. Waterhouse
Rec. Secretary	W. L. Whitney
Treasurer	C. H. Atherton
General Secretary	H. C. Brown
Physical Instructor	F. E. Haley

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

President	Mrs. E. W. Jordan
Vice-President	Mrs. B. F. Dillingham
Secretary	Mrs. W. L. Moore
Treasurer	Mrs. L. B. Marx
General Secretary	
Physical Directress	Miss Nina Adams
Auditor	F. C. Atherton

**WOMAN'S CHRISTIAN TEMPERANCE
UNION OF HAWAII.**

Organized December, 1884.

President Mrs. J. M. Whitney
 Recording Secretary Mrs. C. H. Austin
 Cor. Secretary Mrs. E. W. Jordan
 Treasurer Mrs. B. L. Marx
 Auditor W. A. Bowen

**FREE KINDERGARTEN AND CHILDREN'S
AID ASSOCIATION.**

Organized 1895.

President Mrs. E. B. Waterhouse
 Vice-Presidents—Mrs. S. B. Dole, Mrs. F. J.
 Lowrey, Mrs. Theo. Richards.
 Recording Secretary Miss Elsie Waterhouse
 Treasurer Mrs. F. M. Swanzy
 Financial Secretaries—Miss M. Hopper and
 Mrs. W. F. Frear.
 Auditor W. L. Howard

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President S. B. Dole
 1st Vice-President Rev. A. Mackintosh
 2nd Vice-President Mrs. C. du Roi
 Secretary Mrs. J. M. Whitney
 Treasurer John Waterhouse
 Manager Mrs. E. F. Berger

AMERICAN RELIEF FUND.

Organized 1864. Meets annually Feb. 22.

President Robt. Lewers
 Vice-President W. W. Hall
 Secretary and Treasurer W. O. Atwater

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting in June.

President Mrs. T. H. Hobron, Mrs. A.
 Fuller.
 Secretary Mrs. S. M. Damon
 Treasurer Mrs. E. W. Jordan
 Auditor E. W. Jordan

BRITISH BENEVOLENT SOCIETY.

Organized 1869. Meets Annually.

President (Ex-officio) H. B. M's. Consul
 Vice-President Rev. A. Mackintosh
 Secretary R. Catton
 Treasurer George Davies
 Relief Committee—G. R. Ewart, J. C. Cook,
 W. H. Baird, F. Harrison, R. Anderson
 and H. E. McIntyre, with the above offi-
 cers, comprise the committee.

GERMAN BENEVOLENT SOCIETY.

Organized August 22, 1856.

President F. A. Schaefer
 Vice-President John F. Eckart
 Secretary B. von Damm
 Treasurer H. J. Nolte
 Auditor

HAWAIIAN RELIEF SOCIETY.

Organized 1895.

President Mrs. C. S. Holloway
 Secretary Mrs. E. S. Cunha
 Treasurer Mrs. F. W. Macfarlane

HOSPITAL FLOWER MISSION.

President Mrs. E. W. Jordan
 Vice-President Mrs. A. F. Judd
 Secretary Mrs. G. F. Davies
 Treasurer Miss von Holt
 Auditor E. W. Jordan

OAHU CEMETERY ASSOCIATION.

President A. S. Cleghorn
 Vice-President J. H. Soper
 Secretary D. Dayton
 Treasurer J. R. Galt

**ANTI-SALOON LEAGUE OF HONOLULU,
T. H.**

Organized March 4, 1901.

President Rev. J. W. Wadman.
 Vice-President Mr. W. A. Bowen
 Vice-Pres. Honorary Mrs. J. M. Whitney
 Secretary Rev. E. B. Turner
 Treasurer Rev. W. D. Westervelt

PACIFIC (FORMERLY BRITISH) CLUB.Organized 1852. Premises on Alakea Street,
two doors below Beretania.

President A. S. Cleghorn
 Vice-President Godfrey Brown
 Secretary Jas. G. Spencer
 Treasurer J. M. Dowsett
 Governors—H. M. Whitney, F. Klamp, A.
 A. Wilder, L. E. Pinkham and D. P. R.
 Asenbergs, with the above officers, com-
 prise the Board.

UNIVERSITY CLUB.

Organized 1905.

President Dr. F. R. Day
 Vice-President A. Gartley
 Secretary S. M. Ballou
 Treasurer J. R. Galt

SCOTTISH THISTLE CLUB.

Organized April 27, 1891.

Chief D. W. Anderson
 Captain J. L. Cockburn
 Secretary J. M. Laird
 Treasurer John H. Catton
 Master-at-Arms W. Bell
 Club Room, Oregon Building, Union Street,
 Meeting on Friday, 7:30 p. m.

BUCKEYE CLUB.

Organized 1904.

President Rev. W. H. Rice
 Vice-President H. C. Brown
 Sec. and Treas. J. K. Brown

YOUNG HAWAIIAN'S INSTITUTE.

Organized August 10, 1894.

President Geo. H. Huddy
 Vice-President and Recording Secretary
 Man'l K. Cook
 Treasurer N. Fernandez
 Marshal J. A. Aheong
 Executive Committee—Geo. L. Desha, David
 Kanuha and J. K. Kamanoulu.
 Meets 1st and 3rd Thursdays each month,
 in Kapiolani Building.

HONOLULU SYMPHONY SOCIETY.

Organized 1902.

President C. Hedemann
 Vice-President B. L. Marx
 Secretary W. H. M. Nolet
 Treasurer Julius Bayer
 Librarian Carl Mett
 Director Jos. H. Stockton

YOUNG MEN'S RESEARCH CLUB.

Organized

President C. G. Owens
 Vice-President W. C. Parke
 Sec. and Treas. I. H. Beadle

OAHU POLO CLUB.

President Jno. L. Fleming
 Vice-President Geo. P. Dennison
 Secretary Gerrit P. Wilder
 Treasurer C. H. Cooke
 Captain Geo. H. Angus
 Harold Dillingham, G. P. Thielan.

HONOLULU CHESS CLUB.

Organized

President S. M. Ballou
 Secretary and Treas. C. M. White
 Membership Committee—H. E. Cooper, J.
 Rosenstein, Alex. G. Hawes, Jr.

HAWAIIAN RIFLE ASSOCIATION.

Organized Dec., 1885; revived 1905. (Affiliated with National Rifle Ass'n.)

President Jno. G. Rothwell
 Vice-President John Kidwell
 Secretary P. H. Burnett
 Treasurer Q. H. Berrey
 Executive Officer J. H. Fisher

HAWAII YACHT CLUB.

Organized Oct., 1901.

Commodore H. E. Picker
 Vice-Commodore Geo. F. Renton
 Secretary and Treas. T. H. Petrie
 Directors—T. W. Hobron, C. W. Macfarlane,
 H. E. Cooper, O. L. Sorenson.

MYRTLE BOAT CLUB.

Organized Feb. 5, 1883.

President W. W. Harris
 Vice-President A. A. Wilder
 Secretary J. F. Soper
 Treasurer W. C. Parke
 Captain T. V. King
 Trustees—Geo. Crozier, W. H. Soper, Arthur
 Ewart.

HEALANI YACHT AND BOAT CLUB.

Incorporated Dec., 1894.

President C. L. Crabbe
 Vice-President F. B. Damon
 Secretary F. Hatch
 Treasurer C. C. Rhodes
 Captain A. S. Walker
 Vice-Captain F. H. Armstrong
 Commodore Merle Johnson
 Vice-Commodore R. McCorriston
 Auditor C. P. Marques

HAWAIIAN ROWING ASSOCIATION.

President A. L. C. Atkinson
 Vice-President W. C. Parke
 Secretary and Treasurer C. C. Rhodes
 Regatta Committee—C. C. Rhodes, W. W.
 Harris and W. H. Soper.

OAHU COLLEGE.

President—Arthur F. Griffiths, A. B., History and Economics.
 Wilbur J. McNeil—Chemistry and Natural Sciences.
 John S. Reed—Mathematics.
 Susan Gardner Clark—Greek and Latin.
 Levi Cassius Howland—Commercial Department.
 Anna Luise Hasforth—German and French.
 Chas. T. Fitts—Latin.
 Antoinette J. Foster—English.
 Katharine Merrill Grayden, A. B.—Greek and English (on leave of absence).
 Gerard Barton—Director of Music.
 Carolyn Heloise Barton—Instructor in Piano (on leave of absence).
 J. Howard Hitchcock—Art Drawing.
 Mrs. A. B. Ingalls—Instructor on Violin.
 Florence Kelsey French—Asst. Teacher.
 Mary Charlotte Alexander—Asst. Teacher.
 Frank L. Hadley—Manual Training.
 Eunice C. Pratt—Librarian.
 Mary L. Bettis—Matron.
 Jona. Shaw—Business Manager.
 Frank Barwick—Supt. of Grounds.

PUNAHOU PREPARATORY.

Principal—Saml. P. French.
 Emogene Hart—Eighth Grade.
 Helen K. Sorenson—Vice-Principal, Seventh Grade.
 Mary Gray Borden—Sixth Grade (on leave of absence), Mrs. Elizabeth B. MacNeil, substitute.
 Lulu Grau—Fifth Grade.
 E. A. B. Turner—Fourth Grade.
 Mary Persis Winne—Third and Second Grades.
 Claire H. Uecke—Kindergarten Director.
 C. V. C. Hall and M. Stephen—Assistants.

KAWAIAHAO GIRLS' SEMINARY.

Miss Katheryn C. McLeod—Principal.
 Assistants—Misses Colwell, Edna Skinner, Nellie Waddington, Charlotte P. White.
 Teacher of Music—Miss Grace de Riemer.
 Matron—Miss E. B. Cunningham.

THE KAMEHAMEHA SCHOOLS.

Officers of Administration.

Perley L. Horne—President.
 Uldrick Thompson—Vice-Principal.
 John Lloyd Hopwood—Chaplain.
 Walter Clark—Registrar and Business Agent.
 E. O. Hall—Assistant Registrar and Business Agent.
 E. C. Sterhouse, M. D.—Physician.
 Ida M. Pope—Principal Girls' School.
 Alice E. Knapp—Preparatory Department School for Boys.

FACULTIES.

School for Boys' Manual Department.
 Perley L. Horne—President.
 Uldrick Thompson—Vice-Prin. and Science.
 David Kanuha—Tailoring.
 Ira Eskew—Carpentry.
 Fredk. A. Krauss—Agriculture.
 Stanley Livingston—Mathematics, Music.
 John Lloyd Hopwood—History, Civics, Economics.
 Ross C. Ingram—Forging, Engineer.
 Annie Reed—Geography, Reading.
 Walter Clark—Bookkeeping.
 W. D. Barlow—Asst. in Agriculture.
 Mrs. Alice M. Bradstreet—Matron.
 Miss Elizabeth C. Yoch—English.
 S. Cookson—Machine Shop and Mechanical Drawing.
 E. O. Hall—English.
 A. K. Hanchett—Military Instructor.
 Miss Florence Harrison—Supt. of Hospital, Preparatory Department.
 Alice E. Knapp.
 Eugenia Thomas—Fifth and Sixth Grades.
 Sarah A. Smith—First and Second Grades.
 Claude Post—Third and Fourth Grades.
 Ruth Huntington—Drawing, Manual Training.
 Alice Rule—Matron.
 May Thomas.
 Assistants—Dora Todd, Margaret Anahu, L. J. Nahora Hipa.

School for Girls.

Ida M. Pope.
 Flora N. Albright—English.
 Frances A. Lemmon—Geography, Arithmetic.
 S. Lillian Byington—Music.
 Harriet E. McCracken—Matron.
 Marie McPherson—Nurse.
 Nellie B. Baker—Drawing, Manual Training.
 Mary S. Lawrence—Literature, History.
 Carrie Church—Domestic Art.
 Ethel Robinson—Arithmetic, Geography.
 Assistants—Helen K. Keoiki, Henrietta Scholtz, Margaret Williams, Kaipo Senna.

HONOLULU (STEAM) FIRE DEPARTMENT.

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid department.
 Fire Commissioners—A. Berg, J. A. Gilman, Frank Hustace.
 Chief Engineer—Chas. Thurston.
 Asst. Engineer—Augustus Deering.
 Honolulu Engine No. 1—Location, Central Station, cor. Fort and Beretania streets.
 Mechanic Engine No. 2—Location, Central Station, cor. Fort and Beretania streets.
 Chemical Apparatus No. 3—Location, Central Station, cor. Fort and Beretania streets.
 Protection Hook and Ladder Co. No. 1—Location, Central Station, cor. Fort and Beretania streets.
 Engine Co. No. 4—Location, cor. Wilder avenue and Piikoi street.
 Engine Co. No. 5—Location, King street, near Reform School.

FIRE ALARM SIGNALS.

12. Cor. King and Fort.
13. Queen and Fort.
14. Bethel and Merchant.
15. Nuuanu and Queen.
16. Nuuanu and King.
17. Nuuanu and Hotel.
21. Fort and Hotel.
23. Alakea and Hotel.
24. Alakea and Merchant.
25. Punchbowl and King.
26. Punchbowl and Queen.
27. South and Queen.
31. Fort and Allen.
32. Foot of Fort.
34. Foot of Alakea.
35. Alakea-Halekauwila.
36. Richards and Queen.
37. Punchbowl and Allen.
41. Alakea and Beretania.
42. Nuuanu and Beretania.
43. Smith and Pauahi.
45. Beretania and River.
46. Maunakea and King.
47. King and River.
51. Iwilei Road, opp. entrance to Stockade.
52. Iwilei Road, opp. Jail.
53. Beretania and King.
54. Liliha and King.
56. Insane Asylum Road and School St.
57. King Street, 200 feet Ewa of Pumping Station.
61. Vineyard and River.
62. Vineyard St. and Nuuanu Ave.
63. Vineyard and Fort.
64. Vineyard and Punchbowl.
65. Beretania and Punchbowl.
67. Alapai and Beretania.
71. Liliha and School.
72. Liliha and Judd.
73. Puuoa and Nuuanu Avenue.
74. Nuuanu and School.
75. Fort and School.
76. Emma and School.
81. Alapai and King.
82. Victoria and King.
83. Kapiolani and Beretania.
84. Kapiolani and Green.
85. Pensacola and Lunalilo.
86. Pensacola and Beretania.
87. Piikoi and King.
91. Thurston Ave. opp. Magazine.
92. Pensacola and Wilder Ave.
93. Lunalilo, opp. Kewalo.
94. Keeaumoku St. and Wilder Ave.
95. Kewalo and Heulu.
96. Makiki and Dominis.
97. College and Dominis.
123. Makiki and Lunalilo.
124. Keeaumoku and Kinau.
125. Keeaumoku and King.
126. Punahou, opp. Bingham.
127. Punahou and King.
128. Sunny South.
132. Waikiki Road and Kalia Road.
134. Kalia Road opp. W. R. Castle Place.
135. Waikiki Road, opp. Moana Hotel.
136. Waikiki Road, opp. Race Track.
137. Railroad Wharf.

PRINCIPAL PUBLICATIONS.

- The Hawaiian Gazette, issued semi-weekly by the Hawaiian Gazette Co., Ltd., on Tuesdays and Fridays. Walter G. Smith, Editor.
- Sunday Advertiser, issued every Sunday morning by the Hawaiian Gazette Co., Ltd. Walter G. Smith, Editor.
- The Daily Pacific Commercial Advertiser, issued by the Hawaiian Gazette Co. every morning (except Sundays). Walter G. Smith, Editor.
- Official and Commercial Record, issued semi-weekly by the Hawaiian Gazette Co., Ltd.
- The Daily Bulletin, issued every evening (except Sundays), by the Bulletin Pub. Co. W. R. Farrington, Editor. Weekly editions issued on Tuesdays.
- The Hawaiian Star, issued every evening (except Sundays), by the Hawaiian Star Newspaper Association. Frank L. Hoopes, Manager. Semi-Weekly issued on Mondays and Thursdays.
- The Guide, issued every Tuesday and Friday mornings by the Guide Pub. Co.
- The Friend, Organ of the Hawaiian Board, issued on the first of each month. Rev. Doremus Scudder, Editor.
- The Anglican Church Chronicle, issued on the first Saturday of every month. Rev. A. Mackintosh, Editor.
- The Paradise of the Pacific, issued monthly. W. M. Langton, Editor and Publisher.
- The Planters' Monthly, issued on the 15th of each month. R. D. Mead, Editor.
- The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. L. G. Blackman, Editor.
- The Honolulu Times, issued monthly. Miss A. M. Prescott, Editor and Publisher.
- The Kuokoa (native) weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. D. L. A-i, Editor.
- O. Luso (Portuguese), issued weekly on Saturdays. J. S. Ramos, Editor.
- A Liberdade. Portuguese weekly, published on Thursdays. Camilo Pereira, Editor.
- The Hawaiian-Chinese News, issued semi-weekly.
- Chinese Chronicle, weekly, issued every Wednesday.
- Sun Ching Bok Wo. tri-weekly. Chinese.
- Aloha Aina (native), issued daily except Sundays. Weekly issued every Saturday. Ed. Like, Editor and Manager.
- The Yamato Shimbun, Japanese daily.
- Hawaiian Shimpo, issued daily in Japanese.
- Honolulu News, Japanese daily.
- Hilo Tribune, issued weekly, on Saturdays by the Tribune Pub. Co., Hilo. J. C. Ridgway, Editor.
- The Hawaii Herald, issued weekly at Hilo on Thursdays by the Herald Pub. Co. J. T. Stacker, Editor.
- The Maui News, issued weekly at Wailuku, Maui. H. M. Coke, Editor.
- The HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

HONOLULU LODGES, ETC.

Lodge Le Progres de l'Océanie, No. 124, A. F. & A. M.; meets on the last Monday in each month.

Hawaiian Lodge, No. 21, F. & A. M.; meets in its hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.

Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.

Honolulu Commandery, No. 1, Knights' Temple; meets in Masonic Hall on second Thursday of each month.

Mystic Shrine, Aloha Lodge. No stated time of meeting. Meets at Masonic Hall.

Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.

Nuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.

Alexander Liholiho Council, No. 1, of Kadash; meets on the third Monday of alternate months from February.

Pacific Lodge No. 822, A. F. & A. M.; meets at Masonic Hall every second Monday of the month.

Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.

Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.

Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.

Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.

Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.

Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.

Oahu Lodge, No. 1, K. of P.; meets every Thursday evening at Harmony Hall, on King street.

Mystic Lodge, No. 2, K. of P.; meets every Wednesday evening at Harmony Hall.

Section N. 225—Endowment Rank, K. of P.; meets on the Second Saturday of January, July and December in Harmony Hall.

Hawaiian Council, No. 689, American Legion of Honor; meets on second and fourth Friday evenings of each month in Harmony Hall.

Oceanic Council No. 777, American Legion of Honor; meets on the first and third Tuesdays of each month.

Hawaiian Tribe No. 1, Improved Order of Red Men; meets on second and fourth Fridays of each month at San Antonio Hall.

Court Lunailo, No. 6600, A. O. of Foresters; meets at San Antonio Hall on first and third Fridays of each month.

Court Camoes, No. 8110, A. O. F.; meets second and Fourth Tuesday evenings of month in San Antonio Hall.

Geo. W. De Long Post No. 45, G. A. R.; meets the second Tuesday of each month at Odd Fellows' Building, Fort street.

Theo. Roosevelt Camp No. 1, Dept. of Hawaii U. S. W. V., first and third Wednesdays, Waverley Hall, Bethel.

Geo. C. Wiltse Camp, Sons of Veterans; meets on third Tuesday of each month in San Antonio Hall.

Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at San Antonio Hall every Monday evening.

Court Hawaii, No. 3769, I. O. F.; meets third Monday of each month at Harmony Hall, King street.

Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at San Antonio Hall.

Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, corner of Miller and Beretania streets.

Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets first and third Wednesdays each month at San Antonio Hall, Vineyard street, near Emma street.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first and third Sundays of each month at 7 p. m. in Harmony Hall.

Marine Engineers' Beneficial Association, No. 100; meets every Monday night at Elks' Lodge.

PLACES OF WORSHIP.

Central Union Church, Congregational (Independent), corner Beretania and Richards streets; Rev. Wm. M. Kincaid, pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.

Palama Chapel, J. A. Rath, Superintendent. Sunday school at 9:30 a. m. Gospel services at 7:30 p. m.

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The Christian Church, G. D. Edwards, Pastor. Sunday services at 11 a. m. and 7:30 p. m. at their house of worship, Alakea street, near King. Sunday-school meets at 9:45 a. m.

Salvation Army, services held nightly at hall cor. Nuuanu and King streets, with Sunday services at the usual hours.

Roman Catholic Church. Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

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- Chinese Congregation. Rev. Kong Yim Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.
- St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Osborne, Rector.
- Christian Chinese Church, Fort street; Rev. E. W. Thwing, acting Pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.
- German Lutheran Church, Beretania St.; Rev. W. Felmy, Pastor. Services on Sunday at 11 a. m.; Sunday-school at 10 a. m.
- Portuguese (Protestant) Mission; Rev. A. V. Soares, Pastor. Services every Sabbath at the usual hours. Sunday-school at 3 p. m. Chapel situated corner of Punchbowl and Miller streets.
- Reorganized Church of Jesus Christ, G. J. Waller, Pastor. Services in Mililani Hall. Sunday-school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.
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- Lishop Memorial Chapel, Kamehameha Schools; Dr. J. L. Hopwood, Chaplain. Morning services at 11.

— — —

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ESTABLISHED 1870

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HAWAIIAN Almanac and Annual

FOR

 1907 



THE REFERENCE BOOK OF INFORMATION AND STATISTICS

RELATING TO THE TERRITORY OF HAWAII, OF VALUE TO
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THOS. G. THRUM,

Compiler and Publisher.



Thirty-Third Year of Publication



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HONOLULU:
1906

1907

Counting House Calendar

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
JAN..	6 7 8 9 10 11 12	13 14 15 16 17 18 19	20 21 22 23 24 25 26	27 28 29 30 31	1 2	3 4 5	6 7 8 9 10 11 12
FEB.	10 11 12 13 14 15 16	17 18 19 20 21 22 23	24 25 26 27 28	1 2	3 4 5 6 7 8 9	10 11 12 13 14 15 16	17 18 19 20 21 22 23
MAR.	10 11 12 13 14 15 16	17 18 19 20 21 22 23	24 25 26 27 28 29 30	31	1 2 3 4 5 6 7 8 9	10 11 12 13 14 15 16	17 18 19 20 21 22 23
APR.	14 15 16 17 18 19 20	21 22 23 24 25 26 27	28 29 30	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18	19 20 21 22 23 24 25
MAY	19 20 21 22 23 24 25	26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11	12 13 14 15 16 17 18	19 20 21 22 23 24 25	26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11
JUNE	9 10 11 12 13 14 15	16 17 18 19 20 21 22	23 24 25 26 27 28 29	30	1 2 3 4 5 6 7 8 9 10 11	12 13 14 15 16 17 18	19 20 21 22 23 24 25
JULY	14 15 16 17 18 19 20	21 22 23 24 25 26 27	28 29 30 31	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31
AUG.	11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31
SEPT.	15 16 17 18 19 20 21	22 23 24 25 26 27 28	29 30	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31
OCT.	13 14 15 16 17 18 19	20 21 22 23 24 25 26	27 28 29 30 31	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31
NOV.	10 11 12 13 14 15 16	17 18 19 20 21 22 23	24 25 26 27 28 29 30	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31
DEC.	8 9 10 11 12 13 14	15 16 17 18 19 20 21	22 23 24 25 26 27 28	29 30 31	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17	18 19 20 21 22 23 24

THOS. G. THURM

PUBLISHER

Stationer, Bookseller & News Agent

1063 FORT STREET, HONOLULU, T. H.

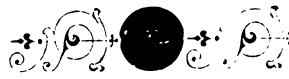


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HAWAIIAN ANNUAL CALENDAR FOR 1907.

Second half of the ninth year and first half of the tenth year since annexation of Hawaii with the United States.

Fourteenth year since the downfall of the Monarchy.

The 129th year since the discovery of the Hawaiian Islands by Captain Cook.

Holidays Observed at the Hawaiian Islands.

*New Year	Jan. 1	*Labor Day (First Monday)	Sept. 2
Chinese New Year.....	Feb. 12	*Regatta Day (Third Saturday)	Sept. 21
*Washington's Birthday....	Feb. 22	Recognition of Hawaiian Independence	Nov. 28
Good Friday	March 29	Thanksgiving Day	Nov. 28
*Decoration Day.....	May 30	*Christmas	Dec. 25
*Kamehameha Day	June 11		
*Birthday Hawn. Republic....	July 4		
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Those distinguished by an Asterisk have been established as Territorial Holidays by Legislative enactment; see Laws 1903, Act. 55.

Chronological Cycles.

Dominical Letter	F	Solar Cycle	12
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Golden Number	8	Julian Period	6620

Church Days.

Epiphany	Jan. 6	Whit Sunday.....	May 19
Ash Wednesday.....	Feb. 13	Trinity Sunday.....	May 26
First Sunday in Lent.....	Feb. 17	Corpus Christi.....	May 30
Good Friday.....	March 29	Advent Sunday.....	Dec. 1
Easter Sunday.....	March 31	Christmas	Dec. 25
Ascension Day	May 9		

Eclipses in 1907.

In the year 1907 there will be four eclipses, two of the Sun, and two of the Moon; and a transit of Mercury over the Sun's disk.

I—Total eclipse of Sun, Jan. 13, not visible in Eastern Pacific.

II—Partial eclipse of Moon, Jan. 29, at Honolulu as follows:

Enters penumbra.....	0.15.9 a. m.	Leaves shadow.....	4.39.9 a. m.
Enters shadow	1.36.3 a. m.	Leaves penumbra	6.0.2 a. m.
Middle of eclipse.....	3.08.1 a. m.	Magnitude of eclipse=	0.711

III—Annular eclipse of Sun, July 10, not visible in the Pacific.

IV—Partial eclipse of Moon, July 24, visible in Honolulu as follows:

Enters penumbra.....	3.28.7 a. m.	Leaves shadow.....	7.11.1 a. m.
Enters shadow.....	4.33.7 a. m.	Leaves penumbra	6.0.2 a. m.
Middle of eclipse.....	5.52.4 a. m.	Magnitude of eclipse=	0.620

—Moon setting eclipsed.—

V—Transit of Mercury, Nov. 14, 1907.

FIRST QUARTER, 1907.

JANUARY					FEBRUARY					MARCH				
D.	H.M.				D.	H.M.				D.	H.M.			
7	Last Quar.	4.17.5	a.m.		5	Last Quar.	2.21.8	p.m.		6	Last Quar.	10.11.8	p.m.	
13	New Moon.	7.27.0	p.m.		12	New Moon.	7.12.9	a.m.		13	New Moon.	7.34.8	p.m.	
20	First Quar.	10.12.0	p.m.		19	First Quar.	6.04.9	p.m.		21	First Quar.	2.39.8	p.m.	
29	Full Moon.	3.15.1	a.m.		27	Full Moon.	7.52.8	p.m.		29	Full Moon.	9.14.4	a.m.	

Day of Mo.	Day of Wk.	Sun Rise....	Sun Set....	Day of Mo.	Day of Wk.	Sun Rise....	Sun Set....	Day of Mo.	Day of Wk.	Sun Rise....	Sun Set....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Tues....	6 37 6	5 29 4	1	Fri.....	6 37 7	5 50 0	1	Fri.....	6 21 1	6 04 2
2	Wed....	6 38 0	5 30 0	2	Sat.....	6 37 4	5 50 6	2	Sat.....	6 20 3	6 04 6
3	Thu....	6 38 4	5 30 7	3	SUN....	6 37 0	5 51 2	3	SUN....	6 19 5	6 05 0
4	Fri.....	6 38 7	5 31 4	4	Mon....	6 36 6	5 51 9	4	Mon....	6 18 7	6 05 4
5	Sat.....	6 38 9	5 32 1	5	Tues....	6 36 2	5 52 5	5	Tues....	6 17 9	6 05 8
6	SUN....	6 39 1	5 32 8	6	Wed....	6 35 8	5 53 1	6	Wed....	6 17 1	6 06 2
7	Mon....	6 39 3	5 33 4	7	Thurs..	6 35 3	5 53 7	7	Thur....	6 16 2	6 06 6
8	Tues....	6 39 5	5 34 1	8	Fri.....	6 34 8	5 54 2	8	Fri.....	6 15 4	6 06 9
9	Wed....	6 39 7	5 34 8	9	Sat.....	6 34 3	5 54 8	9	Sat.....	6 14 6	6 07 3
10	Thu....	6 39 9	5 35 4	10	SUN....	6 33 8	5 55 3	10	SUN....	6 13 7	6 07 7
11	Fri.....	6 40 1	5 36 1	11	Mon....	6 33 3	5 55 8	11	Mon....	6 12 8	6 08 0
12	Sat.....	6 40 2	5 36 8	12	Tues....	6 32 8	5 56 3	12	Tues....	6 11 9	6 08 4
13	SUN....	6 40 3	5 37 5	13	Wed....	6 32 2	5 56 8	13	Wed....	6 11 1	6 08 7
14	Mon....	6 40 4	5 38 2	14	Thurs..	6 31 6	5 57 4	14	Thur....	6 10 2	6 09 0
15	Tues....	6 40 4	5 38 9	15	Fri.....	6 31 0	5 57 9	15	Fri.....	6 09 3	6 09 3
16	Wed....	6 40 4	5 39 6	16	Sat.....	6 30 4	5 58 4	16	Sat.....	6 08 4	6 09 7
17	Thu....	6 40 4	5 40 2	17	SUN....	6 29 7	5 58 9	17	SUN....	6 07 5	6 10 0
18	Fri.....	6 40 4	5 40 9	18	Mon....	6 29 1	5 59 4	18	Mon....	6 06 6	6 10 3
19	Sat.....	6 40 3	5 41 6	19	Tues....	6 28 5	5 59 8	19	Tues....	6 05 6	6 10 6
20	SUN....	6 40 3	5 42 4	20	Wed....	6 27 8	6 00 3	20	Wed....	6 04 7	6 10 9
21	Mon....	6 40 2	5 42 9	21	Thurs..	6 27 1	6 00 8	21	Thur....	6 03 8	6 11 2
22	Tues....	6 40 1	5 43 6	22	Fri.....	6 26 4	6 01 3	22	Fri.....	6 02 9	6 11 6
23	Wed....	6 39 9	5 44 3	23	Sat.....	6 25 8	6 01 8	23	Sat.....	6 02 0	6 11 9
24	Thu....	6 39 8	5 44 9	24	SUN....	6 25 1	6 02 2	24	SUN....	6 01 1	6 12 2
25	Fri.....	6 39 6	5 45 6	25	Mon....	6 24 3	6 02 6	25	Mon....	6 00 2	6 12 5
26	Sat.....	6 39 4	5 46 3	26	Tues....	6 23 5	6 03 0	26	Tues....	5 59 2	6 12 8
27	SUN....	6 39 2	5 46 9	27	Wed....	6 22 7	6 03 4	27	Wed....	5 58 3	6 13 1
28	Mon....	6 39 0	5 47 5	28	Thur....	6 21 9	6 03 8	28	Thur....	5 57 4	6 13 4
29	Tues....	6 38 8	5 48 1					29	Fri.....	5 56 4	6 13 7
30	Wed....	6 38 4	5 48 8					30	Sat.....	5 55 5	6 14 0
31	Thu....	6 38 1	5 49 4					31	SUN....	5 54 6	6 14 3

PROPOSED CHANGE.—The publisher contemplates omitting hereafter the Almanac feature of the ANNUAL unless its continuance is specially desired by a majority of its patrons. With the changes of the past thirty years and the general issue of Calendars now-a-days at the opening of each year, the Almanac is not the local necessity it was, hence, it is thought best to discontinue it and strengthen the ANNUAL in its other features of reference character.

SECOND QUARTER, 1907

APRIL				MAY				JUNE			
D.	H.M.			D.	H.M.			D.	H.M.		
5	Last Quar.	4.50.5	a.m.	4	Last Quar.	11.23.5	a.m.	2	Last Quar.	6.49.6	p.m.
12	New Moon	8.35.8	a.m.	11	New Moon	10.29.3	p.m.	10	New Moon	1.19.9	p.m.
20	First Quar.	10.09.0	a.m.	27	First Quar.	2.57.5	a.m.	18	First Quar.	4.25.0	p.m.
27	Full Moon	7.34.8	p.m.	27	Full Moon	3.47.8	a.m.	25	Full Moon	10.57.0	a.m.
Day of Mo.	Day of Wk.	Sun Rise...	Sun Set....	Day of Mo.	Day of Wk.	Sun Rise...	Sun Set....	Day of Mo.	Day of Wk.	Sun Rise...	Sun Set....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Mon	5 53 7	6 14 7	1	Wed	5 29 5	6 24 8	1	Sat	5 17 3	6 37 8
2	Tues	5 52 8	6 15 0	2	Thurs	5 28 9	6 25 2	2	SUN	5 17 2	6 38 2
3	Wed	5 51 9	6 15 3	3	Fri	5 28 2	6 25 6	3	Mon	5 17 1	6 38 6
4	Thurs	5 51 0	6 15 6	4	Sat	5 27 6	6 26 0	4	Tues	5 17 1	6 39 0
5	Fri	5 50 1	6 15 9	5	SUN	5 27 0	6 26 4	5	Wed	5 17 0	6 39 4
6	Sat	5 49 3	6 16 3	6	Mon	5 26 4	6 26 8	6	Thurs	5 17 0	6 39 7
7	SUN	5 48 4	6 16 6	7	Tues	5 25 8	6 27 2	7	Fri	5 17 0	6 40 1
8	Mon	5 47 5	6 16 9	8	Wed	5 25 3	6 27 6	8	Sat	5 17 0	6 40 5
9	Tues	5 46 6	6 17 2	9	Thurs	5 24 7	6 28 0	9	SUN	5 17 0	6 40 9
10	Wed	5 45 7	6 17 5	10	Fri	5 24 3	6 28 5	10	Mon	5 17 0	6 41 2
11	Thurs	5 44 8	6 17 8	11	Sat	5 23 8	6 28 9	11	Tues	5 17 1	6 41 5
12	Fri	5 44 0	6 18 1	12	SUN	5 23 3	6 29 3	12	Wed	5 17 1	6 41 9
13	Sat	5 43 2	6 18 4	13	Mon	5 22 9	6 29 7	13	Thurs	5 17 2	6 42 2
14	SUN	5 42 4	6 18 7	14	Tues	5 22 5	6 30 2	14	Fri	5 17 3	6 42 5
15	Mon	5 41 5	6 19 0	15	Wed	5 22 0	6 30 6	15	Sat	5 17 4	6 42 8
16	Tues	5 40 7	6 19 4	16	Thurs	5 21 6	6 31 0	16	SUN	5 17 6	6 43 1
17	Wed	5 39 9	6 19 7	17	Fri	5 21 2	6 31 4	17	Mon	5 17 7	6 43 4
18	Thurs	5 39 1	6 20 1	18	Sat	5 20 9	6 31 9	18	Tues	5 17 9	6 43 6
19	Fri	5 38 3	6 20 4	19	SUN	5 20 5	6 32 3	19	Wed	5 18 0	6 43 9
20	Sat	5 37 4	6 20 8	20	Mon	5 20 2	6 32 7	20	Thurs	5 18 2	6 44 1
21	SUN	5 36 6	6 21 1	21	Tues	5 19 9	6 33 1	21	Fri	5 18 4	6 44 4
22	Mon	5 35 8	6 21 5	22	Wed	5 19 5	6 33 5	22	Sat	5 18 6	6 44 6
23	Tues	5 35 1	6 21 8	23	Thurs	5 19 2	6 34 0	23	SUN	5 18 8	6 44 8
24	Wed	5 34 3	6 22 2	24	Fri	5 18 9	6 34 4	24	Mon	5 19 0	6 44 9
25	Thurs	5 33 6	6 22 6	25	Sat	5 18 6	6 34 9	25	Tues	5 19 3	6 45 1
26	Fri	5 32 9	6 22 9	26	SUN	5 18 3	6 35 3	26	Wed	5 19 6	6 45 2
27	Sat	5 32 2	6 23 3	27	Mon	5 18 1	6 35 8	27	Thurs	5 19 9	6 45 4
28	SUN	5 31 5	6 23 7	28	Tues	5 17 9	6 36 2	28	Fri	5 20 2	6 45 5
29	Mon	5 30 8	6 24 1	29	Wed	5 17 7	6 36 6	29	Sat	5 20 5	6 45 6
30	Tues	5 30 1	6 24 4	30	Thurs	5 17 6	6 37 0	30	SUN	5 20 8	6 45 7
				31	Fri	5 17 4	6 37 4				

HAWAIIAN tradition refers to former names for a number of places throughout the islands. The ancient name of Lahaina was Lele. Kakaalaneo, who with his brother Kakae, ruled jointly over Maui and Lanai, is credited with the planting of the bread-fruit trees for which Lahaina in later years became famous. No mention is made as to whence these trees were obtained.

THIRD QUARTER, 1907.

JULY					AUGUST					SEPTEMBER													
D.	H. M.				D.	H. M.				D.	H. M.												
2	Last Quar.....	4	03.9	a.m.	8	New Moon.....	8	06.4	p.m.	7	New Moon.....	10	34.0	a.m.									
10	New Moon.....	4	47.1	a.m.	16	First Quar.....	10	35.5	a.m.	14	First Quar.....	5	10.1	p.m.									
18	First Quar....	2	41.6	a.m.	23	Full Moon.....	1	45.1	a.m.	21	Full Moon.....	11	03.7	a.m.									
24	Full Moon.....	5	59.5	p.m.	30	Last Quar.....	6	57.9	a.m.	29	Last Quar.....	1	07.1	a.m.									
31	Last Quar.....	3	55.5	p.m.																			
Day of Mo.	Day of Wk.	Sun Rise....		Sun Set.....	Day of Mo.	Day of Wk.	Sun Rise....		Sun Set.....	Day of Mo.	Day of Wk.	Sun Rise....		Sun Rise....									
		H.	M.	H.	M.		H.	M.	H.	M.		H.	M.	H.	M.								
1	Mon	5	21	16	45	8	1	Thurs..	5	32	9	6	39	1	1	SUN.....	5	43	2	6	16	6	
2	Tues	5	21	46	45	8	2	Fri	5	33	3	6	38	5	2	Mon.....	5	43	4	6	15	7	
3	Wed	5	21	7	6	45	9	3	Sat.....	5	33	6	6	38	0	3	Tues.....	5	43	7	6	14	8
4	Thurs..	5	22	16	45	9	4	SUN....	5	34	0	6	37	5	4	Wed.....	5	43	9	6	13	9	
5	Fri	5	22	46	45	9	5	Mon.....	5	34	4	6	36	9	5	5	Thurs.....	5	44	2	6	13	0
6	Sat	5	22	8	6	45	8	6	Tues...	5	34	8	6	36	3	6	Fri.....	5	44	4	6	12	1
7	SUN...	5	23	16	45	8	7	Wed...	5	35	2	6	35	7	7	Sat.....	5	44	7	6	11	2	
8	Mon	5	23	5	6	45	8	8	Thurs..	5	35	5	6	35	1	8	SUN.....	5	45	0	6	10	2
9	Tues...	5	23	8	6	45	7	9	Fri.....	5	35	9	6	34	5	9	Mon.....	5	45	2	6	09	3
10	Wed	5	24	2	6	45	6	10	Sat.....	5	36	3	6	33	9	10	Tues.....	5	45	5	6	08	3
11	Thurs..	5	24	5	6	45	6	11	SUN....	5	36	6	6	33	2	11	Wed.....	5	45	8	6	07	3
12	Fri	5	24	9	6	45	5	12	Mon.....	5	37	0	6	32	5	12	Thurs...	5	46	0	6	06	4
13	Sat	5	25	3	6	45	3	13	Tues...	5	37	3	6	31	9	13	Fri.....	5	46	3	6	05	4
14	SUN...	5	25	7	6	45	1	14	Wed....	5	37	7	6	31	2	14	Sat.....	5	46	5	6	04	5
15	Mon	5	26	1	6	45	0	15	Thurs..	5	38	0	6	30	5	15	SUN.....	5	46	8	6	03	5
16	Tues...	5	26	5	6	44	8	16	Fri.....	5	38	3	6	29	7	16	Mon.....	5	47	0	6	02	5
17	Wed	5	26	9	6	44	5	17	Sat.....	5	38	7	6	29	0	17	Tues.....	5	47	3	6	01	6
18	Thurs..	5	27	3	6	44	3	18	SUN...	5	39	0	6	28	3	18	Wed.....	5	47	5	6	00	6
19	Fri	5	27	7	6	44	1	19	Mon....	5	39	3	6	27	5	19	Thurs...	5	47	8	5	59	7
20	Sat	5	28	1	6	43	8	20	Tues...	5	39	6	6	26	7	20	Fri.....	5	48	0	5	58	8
21	SUN...	5	28	5	6	43	5	21	Wed...	5	39	9	6	25	9	21	Sat.....	5	48	3	5	57	8
22	Mon...	5	28	9	6	43	2	22	Thurs..	5	40	2	6	25	1	22	SUN.....	5	48	5	5	56	9
23	Tues...	5	29	3	6	42	9	23	Fri.....	5	40	5	6	24	3	23	Mon.....	5	48	8	5	55	9
24	Wed	5	29	7	6	42	5	24	Sat.....	5	40	8	6	23	5	24	Tues.....	5	49	0	5	54	9
25	Thurs..	5	30	1	6	42	2	25	SUN....	5	41	1	6	22	7	25	Wed.....	5	49	3	5	54	0
26	Fri	5	30	5	6	41	8	26	Mon....	5	41	4	6	21	8	26	Thurs...	5	49	5	5	53	0
27	Sat	5	30	9	6	41	4	27	Tues...	5	41	7	6	20	9	27	Fri.....	5	49	8	5	52	0
28	SUN...	5	31	3	6	40	9	28	Wed...	5	42	0	6	20	1	28	Sat.....	5	50	1	5	51	1
29	Mon	5	31	7	6	40	5	29	Thurs..	5	42	3	6	19	2	29	SUN....	5	50	4	5	50	2
30	Tues...	5	32	1	6	40	0	30	Fri.....	5	42	6	6	18	4	30	Mon.....	5	50	7	5	49	3
31	Wed	5	32	5	6	39	6	31	Sat.....	5	42	9	6	17	5								

TRADITION further says that a son of Kakaalanaeo (name not given), for some of his wild pranks at the Lahaina Court was banished to Lanai, which island was said to be haunted by "Akua ino,"—ghosts and goblins—but by his skill in exorcising evil spirits he brought about quiet and order on the island, and in consequence was restored again to royal favor.

FOURTH QUARTER, 1907.

OCTOBER				NOVEMBER				DECEMBER			
D.	H.M.			D.	H.M.			D.	H.M.		
6	New Moon.....	11.50.6	p.m.	5	New Moon.....	0.08.9	p.m.	4	New Moon.....	11.52.4	p.m.
13	First Quar.....	11.32.0	p.m.	12	First Quar.....	6.44.4	a.m.	11	First Quar.....	3.46.0	p.m.
20	Full Moon.....	10.46.5	p.m.	19	Full Moon.....	1.34.3	p.m.	19	Full Moon.....	7.25.1	a.m.
28	Last Quar.....	9.21.5	p.m.	27	Last Quar.....	5.51.0	p.m.	27	Last Quar.....	0.40.5	p.m.

Day of Mo.	Day of Wk.	Sun Rise....	Sun Set.....	Day of Mo.	Day of Wk.	Sun Rise....	Sun Set.....	Day of Mo.	Day of Wk.	Sun Set.....	Sun Set.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Tues...	5 51 0	5 48 3	1	Fri.....	6 02 8	5 24 4	1	SUN.....	6 20 9	5 17 2
2	Wed...	5 51 3	5 47 4	2	Sat.....	6 03 3	5 23 9	2	Mon.....	6 21 5	5 17 3
3	Thurs..	5 51 6	5 46 5	3	SUN.....	6 03 8	5 23 3	3	Tues.....	6 22 2	5 17 4
4	Fri.....	5 51 9	5 45 6	4	Mon.....	6 04 3	5 22 8	4	Wed.....	6 22 8	5 17 5
5	Sat.....	5 52 1	5 44 7	5	Tues.....	6 04 9	5 22 3	5	Thurs.....	6 23 5	5 17 7
6	SUN.....	5 52 4	5 43 8	6	Wed.....	6 05 4	5 21 9	6	Fri.....	6 24 1	5 17 9
7	Mon.....	5 52 7	5 42 9	7	Thurs..	6 05 9	5 21 4	7	Sat.....	6 24 8	5 18 1
8	Tues.....	5 53 1	5 42 0	8	Fri.....	6 06 5	5 21 0	8	SUN.....	6 25 4	5 18 3
9	Wed.....	5 53 4	5 41 0	9	Sat.....	6 07 1	5 20 6	9	Mon.....	6 26 0	5 18 6
10	Thurs..	5 53 7	5 40 3	10	SUN.....	6 07 7	5 20 2	10	Tues.....	6 26 6	5 18 9
11	Fri.....	5 54 1	5 39 4	11	Mon.....	6 08 2	5 19 9	11	Wed.....	6 27 3	5 19 2
12	Sat.....	5 54 4	5 38 6	12	Tues.....	6 08 8	5 19 5	12	Thurs.....	6 27 9	5 19 6
13	SUN.....	5 54 8	5 37 8	13	Wed.....	6 09 4	5 19 2	13	Fri.....	6 28 5	5 19 9
14	Mon.....	5 55 1	5 36 9	14	Thurs..	6 10 1	5 18 9	14	Sat.....	6 29 1	5 20 3
15	Tues.....	5 55 5	5 36 1	15	Fri.....	6 10 7	5 18 6	15	SUN.....	6 29 7	5 20 7
16	Wed.....	5 55 8	5 35 3	16	Sat.....	6 11 3	5 18 3	16	Mon.....	6 30 3	5 21 0
17	Thurs..	5 56 2	5 34 5	17	SUN.....	6 11 9	5 18 0	17	Tues.....	6 30 8	5 21 4
18	Fri.....	5 56 6	5 33 8	18	Mon.....	6 12 5	5 17 8	18	Wed.....	6 31 4	5 21 9
19	Sat.....	5 56 9	5 33 0	19	Tues.....	6 13 1	5 17 6	19	Thurs.....	6 31 9	5 22 3
20	SUN.....	5 57 3	5 32 2	20	Wed.....	6 13 8	5 17 4	20	Fri.....	6 32 4	5 22 8
21	Mon.....	5 57 7	5 31 5	21	Thurs..	6 14 4	5 17 2	21	Sat.....	6 32 9	5 23 2
22	Tues.....	5 58 2	5 30 7	22	Fri.....	6 15 0	5 17 1	22	SUN.....	6 33 5	5 23 7
23	Wed.....	5 58 6	5 30 0	23	Sat.....	6 15 7	5 17 0	23	Mon.....	6 34 0	5 24 3
24	Thur.....	5 59 0	5 29 3	24	SUN.....	6 16 3	5 17 0	24	Tues.....	6 34 5	5 24 8
25	Fri.....	5 59 5	5 28 6	25	Mon.....	6 17 0	5 17 0	25	Wed.....	6 35 0	5 25 3
26	Sat.....	5 59 9	5 28 0	26	Tues.....	6 17 6	5 17 0	26	Thurs.....	6 35 5	5 25 9
27	SUN.....	6 00 4	5 27 4	27	Wed.....	6 18 2	5 17 0	27	Fri.....	6 35 9	5 26 4
28	Mon.....	6 00 9	5 26 7	28	Thurs..	6 18 9	5 17 0	28	Sat.....	6 36 4	5 27 0
29	Tues.....	6 01 4	5 26 1	29	Fri.....	6 19 5	5 17 1	29	SUN.....	6 36 7	5 27 6
30	Wed.....	6 01 8	5 25 5	30	Sat.....	6 20 2	5 17 1	30	Mon.....	6 37 0	5 28 2
31	Thurs..	6 02 3	5 24 9					31	Tues.....	6 37 3	5 28 8

VANCOUVER, in March, 1792, on his first visit to these islands, left with Kiana, at Kealakckua, several vine and orange plants, some almonds, and an assortment of garden seeds, varieties not mentioned. At Kawaihae, a chief named Kahaumoku was also given some fine orange plants, an assortment of garden seeds and a goat and kid. This is doubtless the origin of the excellent oranges for which Kona has long been famous.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1 $\frac{1}{4}$	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N. W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena.	58

HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Kawaiahae, Hawaii	144
Kalaupapa, Leper Settlement....	52	Kealakekua, " (direct)	157
West Point of Lanai.....	50	" " (via Kawaihae)	186
Lahaina, Maui.....	72	S. W. Pt. Hawaii "	233
Kahului, "	90	Punaluu, "	250
Hana, "	128	Hilo, " (direct)	192
Maalaea, "	86	" " (windward)	206
Makena, "	96	" " (via Kawaihae)	230
Mahukona, Hawaii	134		

HONOLULU TO

Nawiliwili, Kauai	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoe, Hawaii	62	Kealakekua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaalualu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.	2360	Hongkong	4020
Brito, Nicaragua	4200	Yokohama	3100
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N. E. Cape.....	4800
Samoa	2200	Victoria, B. C.	2160
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

Revised for the Annual in accordance with latest Government Survey measurements.
The outer column of figures indicates the distance between points

ISLAND OF OAHU.**HONOLULU POST-OFFICE TO**

Miles.		Miles. Inter.	
Bishop's corner (Waikiki).....	3.2	Kahana	26.4 4.5
Waikiki Villa	3.6	Punaluu	28.4 2.0
Race Course	4.5	Hauula	31.4 3.0
Diamond Head	5.9	Laie	34.4 3.0
Kaalawai	6.0	Kahuku Mill	37.2 2.8
Miles. Inter.		Kahuku Ranch	40.0 2.8
Thomas Square	1.0	Moanalua	3.4
Pawaa corners	2.0	Kalauao	7.4 4.0
Kamoiiliili	3.3	Ewa Church	10.2 2.8
Telegraph Hill	5.0	Kipapa	13.6 3.4
Waialae	6.2	Kaukonahua	20.0 6.4
Niu	8.8	Leilehua	20.0
Koko Head	11.8	Waialua	28.0 8.0
Makapuu	14.8	Waimea	32.4 4.4
Waimanalo	20.8	Kahuku Ranch	39.4 7.0
Waimanalo, via Pali.....	12.0	Ewa Church	10.2
Nuuanu Bridge	1.1	Waipio (Brown's)	11.2 1.0
Mausoleum	1.5	Hoaeae (Robinson's)	13.5 2.3
Electric Reservoir	2.7	Barber's Point, L. H.	21.5 8.0
Luakaha	4.3	Nanakuli	23.5 2.0
*Pali	6.2	Waianae Plantation	29.9 6.4
Kaneohe (new road).....	11.9	Kahanahaiki	36.9 7.0
Waiahole	18.9	Kaena Point	42.0 5.1
Kualoa	21.9	Waialua to Kaena Pt.	12.0

OAHU RAILWAY: DISTANCES FROM HONOLULU DEPOT TO

Miles.		Miles.	
Moanalua	2.7	Waipio	13.5 ⁸
Puuloa	6.23	Waikale	14.57
Halawa	8.14	Hoaeae	15.23
Aiea	9.37	Ewa Plantation Mill	18.25
Kalauao	10.20	Waianae Station	33.30
Waiau	10.93	Kaena Point	44.50
Pearl City	11.76	Waialua Station	55.80
Waiawa	12.52	Kahuku Plantation	69.50
		Wahiawa Station	25.20

ISLAND OF KAUAI.**NAWILIWILI TO**

Miles. Inter.		Miles. Inter.	
Koloa	11.0	Wailua River	7.7 4.4
Lawai	13.8	Kealia	11.9 4.2
Hanapepe	20.0	Anahola	15.7 3.8
Waimea	27.1	Kilauea	23.6 7.9
Waiawa	31.5	Kalihiwai	26.6 3.0
Nuololo	44.8	Hanalei	31.8 5.2
		Wainiha	34.8 3.0
Hanamaulu	3.3	Nuololo (no road)	47.0 12.2

* Pali distance is by the old Road, new measurements are not of record.

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	3.5		Paia	5.5	
Paia	5.5	2.0	Makawao Court House. .	10.5	5.0
Hamakuapoko Mill	8.6	3.1	Olinda	16.7	6.2
Haiku	10.2	1.6	Haleakala, edge Crater. .	22.5	5.8
Halehaku	16.0	5.8	Haleakala Summit	24.7	2.2
Huelo	19.5	3.5			
Keanae	27.2	7.7	Maalaea	9.9	
Nahiku	32.7	5.5	End of Mountain Road. .	15.4	5.5
Ulaino	36.3	3.6	Olowalu	19.6	4.2
Hana	42.3	6.0	Lahaina Court House. . .	25.5	5.9
Hamoā	45.3	3.0			
Wailua	48.9	3.6	Waiehu	3.3	
Kipahulu Mill	52.2	3.3	Waihee	4.8	1.5
Mokulau	56.6	4.4	Kahakuloa	10.1	5.3
Nuu	62.1	5.5	Honokohau	14.5	4.4
			Honolua	17.4	2.9
Wailuku	3.1		Napili	20.0	2.6
Waikapu	5.5	2.4	Honokawai	23.8	3.8
Maalaea	9.9	4.4	Lahaina Court House. . .	29.3	5.5
Kalepolepo	14.6	4.7			
Mana	22.3	7.7	MAKENA TO		
Ulupalakua	25.6	3.3	Ulupalakua	3.3	
Kanaio	28.9	3.3	Kamaole	7.1	3.8
Pico's	35.5	6.6	Waiakoa	12.1	5.0
Nuu	41.0	5.5	Foot of Puu Pane.	15.8	3.7
			Makawao Court House. .	21.8	6.0

ISLAND OF HAWAII.

WAIMEA COURT HOUSE TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary	4.5		Hilo, via Humuula St'n. .	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep St'n. . .	14.0	
Mana	7.7		Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Auwaiakewa	12.5		Kohala Court House . . .	22.0	5.0
Humuulu Sheep Station. .	29.0	16.5	Mahukona	22.0	
Via Laumaia	47.5		Puako	12.0	

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch. . . .	4.00	Union Mill	2.25
Niulii Mill	2.80	Union Mill R. R. Station. .	3.25
Halawa Mill	1.65	Honomakau	2.55
Hapuu Landing	2.15	Hind's Hawaii	3.25
Kohala Mill	.50	Hawi R. R. Station. . . .	4.25
Kohala Mill Landing. . . .	1.50	Honoipu	7.25
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0		Dr. Wight's Corner.....	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niulii Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch....	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	
Kohala Mill Corner.....	10.4	0.7			

SOUTH KOHALA.—KAWAIIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4		Mana, Parker's	19.5
Puuiiki, Spencer's	7.7	3.3	Keawewai	6.0
Waiaka, Catholic Church.	9.5	1.8	Puuhue Ranch	10.0
Puuopelu, Parker's	10.8	1.3	Kohala Court House.....	15.0
Waimea Court House.....	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA. KEALAKEKUA TO

Keauhou	6.0		Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopulua	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0		Honuapo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

(By new road.)

	Miles.		Miles.
Keaau, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiki (Rycroft's)	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau.....	56.0
Kamaili	26.0	Sand Hills, Naawale, old road....	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.3
Edge of Woods	4.1	Mason's	17.5
Cocoonut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolii Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road.....	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Haikulau, east edge gulch.....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoehoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kukaiau Gulch	8.0	Stream at Kukuihaele.....	26.0
Horner's	8.5	Edge Waipio	26.3
Catholic Church, Kainehe.....	9.0	Bottom Waipio	27.0
Notley's, Paauilo	10.5	Waimanu (approximate)	32.5
Kaumoalii Bridge	12.5	Kukuihaele to Waimea (approximate)	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill....	1.5
Wm. Horner's, Paauhau.....	15.2	Gov't. Road to Paauhau Mill....	1.0
Paauhau Church	16.3	Gov't. Road to Pacific Sugar Mill,	
Holmes' Store, Honokaa.....	18.0	Kukuihaele	0.7
Honokaia Church	20.5		

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluahaha	13.5		

TABLE OF ELEVATIONS OF PRINCIPAL LOCALITIES THROUGHOUT THE ISLANDS.

(From Government Survey Records; Measurements from mean Sea Level.)

OAHU PEAKS.

	Feet.		Feet.
Kaala, Waianae Range.....	4030	Telegraph Hill or Kaimuki.....	291
Palikea, Waianae Range.....	3111	Koko Head, higher crater.....	1203
Konahuanui Peak, S. of Pali.....	3105	Koko Head, lower crater.....	644
Lanihuli Peak, N. of Pali.....	2781	Makapuu, east point of island....	665
Tantalus or Puu Ohia.....	2013	Mokapu, crater off Kaneohe....	681
Awawaloa (Olympus), Manoa.....	2447	Olomana, sharp peak, Kailua....	1645
Round Top or Ualakaa.....	1049	Maelieli, sharp peak, Heeia.....	715
Punchbowl Hill or Puowaina....	498	Ohulehule, sharp peak, Hakipuu..	2263
Diamond Head or Leahia.....	761	Koolau Range, above Wahiawa..	2381

LOCALITIES NEAR HONOLULU.

Nuuanu Road, cor. School St....	40	Nuuanu Road, Queen Emma's..	358
" " second bridge....	77	" " cor. above Elec-	
" " cor. Judd St.....	137	tric Light Works.....	429
" " Cemetery gate....	162	Nuuanu Road, large bridge....	735
" " Mau's'l'm gate....	206	" " Luakaha gate....	848
" " Schaefer's gate....	238	" " Pali, old station..	1214

MOLOKAI ETC.

Kamakou Peak	4958	Kaolewa Pali, o'v'lkng. Settlmnt..	2100
Oloku Peak	4600	Meyer's, Kalae	1485
Kaunuohua	4535	Mauna Loa, near Kaunakakai....	1382
Kalapamoa	4004	Kualapuu Hill	1018
Puu Kolehoke	3951	Kahoolawe (Moaula Hill).....	1472
Kaulahuki	3749	Molokini	160
Kaapahu Station	3563	Lanai	3400

HAWAII.

	Feet.		Feet.
Mauna Kea	13,825	Hiilawe Falls	1700
Mauna Loa	13,675	Parker's, Mana	3505
Hualalai	8275	Honokaa Store	1100
Kohala Mountains	5489	Lower edge forest, Hamakua ..	1700
Kilauea Vol. House, by leveling	3971	Lower edge forest, Hilo.....	1200
Kulani, near Kilauea.....	5574	Laupahoehoe Pali	385
Kalaiheia	6660	Maulua Pali	406
Aahuwela, near Lahaina.....	7747	Kauku Hill	1964
Hitchcock's, Puakala	6325	Puu Alala	762
Ahumo'a	7034	Halai Hill	347
Waimea Court House.....	2669	Puu o Nale, Kohala.....	1797
Waipio Pali, in Mountain.....	3000	B. D. Bond's, Kohala.....	521
Waipio Pali, on S (Road)....	900	Anglican Church, Kainaliu..	1578
Waipio Pali, on N. side.....	1394	Puu Enuhe, Kau.....	2327
Waimanu, at sea.....	1600	Puu Hoomaha, Kau.....	6636
Waimanu, in mountain.....	4000	Puu ka Pele, Kau.....	5768
Waiau Lake, Mauna Kea.....	13,041	Kaluamakani, Hamakua	7584
Poliahu, Mauna Kea.....	13,646	Kapoho Hill, Puna.....	432
Kalaieha, N. Hilo.....	6738	Kaliu Hill, Puna.....	1065
		Olaa Trig. Station.....	622

MAUI.

Haleakala (Red Hill).....	10,032	Puu Kapuai, Hamakua.....	1150
Mt. Kukui, West Maui.....	5790	Puu o Umi, Haiku.....	629
Piiholo, Makawao	2256	Puu Pane, Kula.....	2568
Puu Olai (Miller's Hill).....	355	Lahainaluna Seminary	600
Puu Io, near Ulupalakua.....	2841	Kauiki, Hana	392
Ulupalakua, about	1800	"Sunnyside" Makawao	930
Olinda, Makawao	4043	Paia Foreign Church, about. ..	850
Puu Pane, Kahikinui.....	3988	Eka, crater in Waihee.....	4500
Puu Nianiau, Makawao.....	6850	Keakaamanu, Hana	1250

KAUAI

Haupu	2030	Mt. Waialeale, central peak....	5250
Kilohana, about	1100	Namolokama	4200

NOTE—A large number of approximate elevations of stations where rain records are kept may be found in the Rain Tables in this Annual.

Area, Elevation and Population of the Hawaiian Islands.

(As revised by latest Government Survey Records.)

Islands.	Area in Statute Square Miles.	Acres.	Height in Feet.	Population in 1900.
Hawaii.....	4,015	2,570,000	13,825	46,843
Maui.....	728	466,000	10,032	24,797
Oahu.....	598	384,000	4,030	58,504
Kauai.....	547	348,000	5,250	20,562
Molokai.....	261	167,000	4,958	2,504
Lanai.....	139	86,000	3,400	619
Niihau.....	97	62,000	1,300	172
Kahoolawe.....	69	44,000	1,472	.....

Total area of Hawaiian Islands, 6,449 miles.

The outlying islets on the N. W. may amount to 6 square miles.

KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.
 Circumference, 41,500 feet, or 7.85 miles.
 Extreme width, 10,300 feet, or 1.95 miles.
 Extreme Length, 15,500 feet, or 2.93 miles.
 Elevation, Volcano House, 4,000 feet.

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.
 Circumference, 50,000 feet, or 9.47 miles.
 Length, 19,500 feet, or 3.7 miles.
 Width, 9,200 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

HALEAKALA, MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.
 Circumference, 105,600 feet, or 20 miles.
 Extreme Length, 39,500 feet, or 7.48 miles.
 Extreme width, 12,500 feet, or 2.37 miles.
 Elevation to summit, 10,032 feet.
 Elevation of principal cones in crater, 8,032 and 1,572 feet.
 Elevation of cave in floor of crater, 7,380 feet.

IAO VALLEY, MAUI.

Length (from Wailuku), about 5 miles.
 Width of Valley, 2 miles.
 Depth, near head, 4,000 feet.
 Elevation of Puu Kukui, above head of Valley, 5,700 feet.
 Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

Standard and Local Time.

The Standard Time of the Hawaiian Islands is that of Longitude $157^{\circ} 30' W.$, 10 h. 30 m. slower than Greenwich Time. The time of sunrise and sunset given in the tables is of course local time; to correct this to standard time, add or subtract a correction corresponding with the differences between $157^{\circ} 30'$ and the longitude of the station.

The corrections would be for the following stations:

Niihau	+ 10:8 m	Wailuku, Maui	— 4:0 m
Mana, Kauai	+ 9:0 m	Haiku, Maui	— 4:8 m
Koloa, Kauai	+ 7:9 m	Hana, Maui	— 6:0 m
Kilauea, Kauai	+ 7:3 m	Kailua, Hawaii	— 6:2 m
Waialua, Oahu	+ 2:5 m	Kohala, Hawaii	— 7:0 m
Kahuku, Oahu	+ 2:0 m	Kukuihaele, Hawaii	— 8:0 m
Honolulu, Oahu	+ 1:5 m	Punaluu, Hawaii	— 8:0 m
Kalae, Molokai	— 2:0 m	Ookala, Hawaii	— 9:0 m
Lanai	— 2:5 m	Hilo, Hawaii	— 9:8 m
Lahaina, Maui	— 3:0 m		

LATEST CENSUS—HAWAIIAN ISLANDS.

From Census Bulletin, Washington, D. C., 1900.

Total Population by Districts and Islands—Comparative 1900 and 1896.

HAWAII,	1900	1896	OAHU,	1900	1896
Hilo.....	19,785	12,878	Honolulu	39,306	29,920
Puna	5,128	1,748	Ewa.....	9,689	3,067
Kau	3,854	2,908	Waianae	1,008	1,281
North Kona	3,819	3,061	Waialua	3,285	1,349
South Kona	2,372	2,327	Koolauloa	2,372	1,835
North Kohala	4,366	4,125	Koolaupoko	2,844	2,753
South Kohala	600	558			
Hamakua.....	6,919	5,680	KAUAI.	58,504	40,205
			Waimea	5,714	4,431
MAUI,	46,843	33,285	Niihau	172	164
Lahaina	4,332	2,398	Koloa	4,564	1,835
Wailuku	7,953	6,072	Kawaihau	3,220	2,762
Hana.....	5,276	3,792	Hanalei	2,630	2,775
Makawao	7,236	5,464	Lihue	4,434	3,425
	24,797	17,726		20,734	15,392
Molokai and Lanai	3,123	2,412	Total whole group	154,001	109,020

Comparative Table of Nationality of Population of Hawaiian Islands at various census periods since 1872.

Nationality	1872	1878	1884	1890	1896	1900
Natives	49,944	44,088	40,014	34,436	31,019	29,787
Part Hawaiians	1,487	3,420	4,218	6,186	8,485	7,848
Chinese.....	1,938	5,916	17,937	15,301	19,382	25,762
Americans	889	1,276	2,066	1,928	2,266	7,283
Hawaiian-born foreigners ..	849	947	2,040	7,495	13,733	
British.....	619	883	1,282	1,344	1,538	1,730
Portuguese	395	436	9,377	8,602	8,232	15,675
German	224	272	1,600	1,434	912	1,154
French.....	88	81	192	70	75	.....
Japanese.....	.....	.....	116	12,360	22,329	61,115
Norwegian.....	.....	.....	362	227	216	410
Other foreigners	364	666	416	419	424	2,584
Polynesian .....	.....	.....	965	588	409	653
Total	56,897	57,985	80,578	89,990	109,020	154,001

Population of Honolulu at various census periods.

1884.....	20,487	1896.....	29,926
1890.....	22,907	1900.....	39,300

Foreign Born Population of Hawaii, 1900, distributed according to country of births:

As reported for the Annual by the Census Bureau, Washington, D. C.

Country	Hawaii	Kauai and Niihau*	Lanai and Maui	Molokai	Oahu	Total
Atlantic Islands	522	76	154	12	392	1,156
Austria.....	99	26	64	....	36	225
Canada (Engl.)	79	11	9	2	238	339
China	4,202	3,265	2,988	77	11,209	21,741
England.....	142	35	49	6	507	739
Germany.....	135	334	71	11	603	1,154
Ireland.....	25	9	15	4	172	225
Japan.....	21,314	9,736	10,465	382	14,337	56,234
Norway and Denmark....	31	50	44	6	139	270
Pacific Islands..	49	63	161	11	309	593
Portugal.....	2,217	727	1,032	6	2,530	6,512
Scotland.....	163	39	39	1	185	427
Spain.....	54	12	27	....	109	202
Sweden.....	40	4	9	2	85	140
Other Countries	162	85	64	9	503	823
Total.....	29,234	14,472	15,191	529	31,354	0,780

*Niihau's share of Foreign born is 3; one each Scotch, Japanese and one other.

Native Born Population of Hawaii, 1900.

The total native born Population of Hawaii is 63,221, which is made up as follows:

Hawaiian	29,787	Negroes	178
Part Hawaiian...	7,843	South Sea Islanders.....	60
Caucasians	7,283	Japanese	4,881
Portuguese	9,163	Chinese.....	4,021

Comparative Table, of Population, Hawaiian Islands— Census Periods 1853-1900.

Islanns	1853	1860	1866	1872	1878	1884	1890	1896	1900
Hawaii	24,450	21,481	19,808	16,001	17,034	24,991	26,754	33,285	46,843
Maui	17,574	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797
Oahu	19,126	21,275	19,799	20,671	20,236	28,068	31,194	40,205	58,504
Kauai	6,991	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562
Molokai ...	3,607	2,864	2,299	2,349	2,581	....	2,652	2,307	2,504
Lanai	600	646	394	348	214	2,614	174	105	619
Niihau	790	647	325	233	177	....	216	164	172
Kahoolawe .....	....	....	....	....	....	....	....	....	....
Total	73,138	69,800	62,959	56,897	57,985	80,578	89,990	109,020	154,001
All For'g'rs	2,119	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366
Hawaiians ..	71,019	67,084	58,765	51,531	47,508	44,232	40,622	39,504	37,635

*Including Niihau.

School Statistics, Territory of Hawaii.

From Report of the Superintendent of Public Instruction.
NUMBER OF SCHOOLS, CLASS, ETC., 1906.

ISLANDS	PUBLIC SCHOOLS					PRIVATE SCHOOLS		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii	61	141	2,849	2,252	5,101	10	31	714
Oahu	35	161	3,229	2,807	6,036	29	185	3,254
Maui and Lanai	32	72	1,439	1,174	2,613	15	38	1,109
Kauai and Niihau ..	17	52	1,160	965	2,125	3	6	127
Molokai	9	9	149	95	244	1	1	35
Totals	154	435	8,826	7,293	16,119	58	261	5,239

NUMBER OF SCHOOLS, TEACHERS AND PUPILS 1906.

CLASS	Schools	TEACHERS			PUPILS		
		M.	F.	Total	M.	F.	Total
Public	154	109	326	435	8,826	7,293	16,119
Private	58	81	180	261	2,812	2,427	5,239
Totals	212	190	506	696	11,638	9,720	21,358

AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS, 1906.

SEX	Under 6	6-15	Over 15	Total
Boys	635	10,056	947	11,638
Girls	595	8,524	601	9,720
Totals	1,230	18,580	1,548	21,358

NATIONALITY OF PUPILS, 1906.

	Public	Private		Public	Private
Hawaiians	4,045	800	Chinese	1,489	603
Part Hawaiians	2,383	1,040	Japanese	3,578	719
Americans	457	502	Porto Ricans	338	.....
English	142	81	Other Foreigners ..	242	104
Germans	144	119			
Portuguese	2,339	1,233	Total	16,119	5,239
Scandinavian	63	38			

The nationality of teachers in all schools of the Islands, 1906, was as follows: Hawaiian, 87; Part Hawaiian, 121; American, 328; English, 59; German, 28; Portuguese, 13; Chinese, 14; Japanese, 9; other Foreigners, 22; Total, 696.

Church Statistics, 1905.

From Report of Superintendent of Public Instruction.

DENOMINATIONS	No. of Churches	No. of Pastors or Priests	No. of Members	No. of Sun. Schs.	No. of Sunday School Scholars	Value of Church Property
Christian Church.....	5	1	150	4	150	\$ 13,500
Methodist Epispl Church.....	12	16	1,000	20	1,000	33,000
Latter Day Saints.....	20	220	5,133	63	2,404	16,784
German Lutheran Ch'ch.....	2	2	250	2	28	50,000
Seventh Day Adventists.....	1	1	30	1	40	6,000
Prot. Episcopal Church..	10	16	2,500	14	723	149,000
Buddhists	21	15	40,000	....	.....	58,200
Congregational Church..	90	71	6,325	55	5,872	640,000
Roman Catholic Church.....	115	75	12,000	76	2,270	300,000
Total.....	276	417	67,388	235	12,487	\$ 1,266,484

Vital Statistics, Territory of Hawaii.

For the Fiscal Year ending June 30, 1906. Summarized from Board of Health Reports

ISLANDS, ETC.	Births	Marriages	Deaths
Honolulu	609	637	880
Other Districts of Oahu	264	58	281
Hilo, Hawaii	299	122	347
Other Districts of Hawaii.....	520	148	518
Maui, Molokai, etc.	461	197	528
Kauai and Niihau	519	76	244
Total, 1905-06	2,672	1,238	2,798
“ 1904-05	2,490	1,180	2,640
“ 1903-04	2,355	1,182	2,367
“ 1902-03	2,386	996	2,581
“ 1901-02	2,346	1,324	2,747

Coast Line Distance of Hawaiian Islands.

Courtesy of W. E. Wall, Government Survey Office.

	MILES		MILES
Distance around Hawaii.....	297	Distance around Molokai.....	100
“ “ Oahu	177	“ “ Lanai	53
“ “ Maui	146	“ “ Niihau	48
“ “ Kauai	106	“ “ Kahoolawe....	30
Total Coast line distance around the islands 957 miles.			

Estimated Japanese Population of Hawaii, 1906.

Total number at census of 1900, Japan born.....	56,234
“ “ “ Hawaiian born	4,881
Excess of arrivals over departures to July 1, 1905.....	3,865
Arrivals of Japanese for fiscal year to July 1, 1906.....	9,890
	74,870
Less departures of Japanese for fiscal year to July 1, 1906, estimated.	12,000
Estimated Japanese Population, July 1, 1906.....	62,870

Import Values from United States for fiscal year ending June, 1906.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles.	Domestic Mdse.	Foreign Dutiable	Mdse. Free
Agricultural Implements	\$ 22,635	.....	.....
Aluminum	9,587	.....	.....
Animals	115,197	.....	.....
Art Works	1,778	.....	.....
Books, Maps, etc.	58,037	9	.....
Brass, and Manufactures of.	24,366	.....	.....
Breadstuffs	1,472,230	1,981	.....
Bricks	15,940	.....	.....
Brooms and Brushes.	17,252	.....	.....
Candles	16,408	.....	.....
Carriages, Cars, etc., and parts of. .	208,987	.....	.....
Cement	22,133	.....	.....
Chemicals, Drugs, Dyes, etc.	213,245	18,456	4,820
Clocks and Watches.	14,455	.....	.....
Coal and Coke	59,379	.....	.....
Cocoa and Chocolate.	10,788	.....	.....
Coffee, prepared	11,029	.....	260
Copper and manufactures of.	29,306	.....	.....
Cork	10,571	.....	.....
Cotton, manufactures of.	872,332	8,776	.....
Earthen, Stone and Chinaware.	29,411	7,862	.....
Eggs	12,995	.....	.....
Feathers	1,737	.....	.....
Fertilizers	611,583	.....	.....
Fibers, Textile Grasses, man. of. .	101,843	2,557	.....
Fish	247,954	6,446	.....
Fruits and Nuts.	138,495	1,450	.....
Furniture of Metal.	6,546	.....	.....
Glass and Glassware.	88,305	760	.....
Gunpowder and other Explosives. .	78,502	.....	.....
Hair and manufactures of.	3,515	.....	.....
Hay	132,123	.....	.....
India Rubber, manufactures of.	94,614	.....	.....
Instruments, etc., for scientific purp.	71,241	.....	.....
Iron and Steel and manufactures of.	66,535	124	.....
Sheets and Plates, etc.	181,150	.....	.....
Builder's Hardware, etc.	185,408	.....	.....
Machinery, Machines, parts of. .	572,475	.....	.....
Nails, Spikes, Pipes, etc.	374,846	.....	.....
Jewelry & man'frs., Gold & Silver. .	83,665	.....	.....
Lamps, Chandeliers, etc.	16,131	.....	.....
Lead and manufactures of.	17,622	.....	.....
Leather and manufactures of.	307,848	.....	.....
Lime	81,590	.....	.....
Malt	13,207	.....	.....
Marble, Stone and manufactures of. .	6,251	.....	.....
Matches	14,280	.....	.....

Import Value from United States for 1906.—Continued.

Articles.	Domestic Mdse.	Foreign Dutiable	Mdse. Free
Metals, manufactures of, N. O. S.		493	
Musical Instruments	\$ 45,196		
Naval Stores	10,991		
Nursery Stock	2,356		
Oil Cloths	3,706		
Oils; Animal, Mineral, Crude.	947,069		
Refined, etc.	292,742		8,372
Vegetable	31,181	2,283	
Opium, for smoking		118,118	
Paints, Pigments and Colors.	97,521		
Paper and manufactures of.	176,705	194	
Perfumery, etc.	6,610		
Plated Ware	24,859		
Provisions, etc., Beef Products.	108,190		
Hog and other Meat Products.	235,766		
Dairy Products	243,378	274	
Rice	164,863		
Salt	6,034		
Seeds	5,278		
Shells	1,480		
Silk and manufactures of.	39,539		
Soap; Toilet and other.	87,067		
Spices			97
Spirits, etc., Malt Liquors.	85,053	695	
Spirits, distilled	146,784	30,391	
Wines	309,118	15,054	
Starch	9,657		
Straw and Palm Leaf, man. of.	28,864		
Sugar, Molasses and Confectionery.	93,490	713	
Tea			10,774
Tin and manufactures of.	25,352		3,495
Tobacco, manufactures of.	494,818	6,009	
Toys	18,020		
Trunks, Valises, etc.	15,575		
Varnish	5,017		
Vegetables	157,370	1,518	
Vinegar	5,886		
Wood and manufactures of.		431	
Timber and unmanufactured.	89,139		
Lumber, Shingles, etc.	536,079		
Doors, Sash, Blinds and all other.	97,100		
Furniture, n. e. s.	91,932		
Wool, manufactures of.	192,852	5,265	
Zinc and manufactures of.	4,174		
All other articles	88,815	6,564	1,279
Total	\$11,771,155	\$ 236,423	\$ 29,097

Value Domestic Mdse. shipments to the United States from Hawaii for fiscal years ending June 30, 1905, and 1906.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles	1905	1906
Animals	\$ 2,186	\$ 310
Art Works, Paintings, etc.	1,447	8,103
Beeswax	2,628	6,745
Books and printed matter	10,364	10,486
Brass and manufactures of	786	3,127
Breadstuffs	494	8,878
Carriages, etc., and parts of	7,861	13,930
Chemicals, drugs, etc.	7,135	15,277
Coffee	173,630	248,618
Copper and manufactures of	3,348	3,065
Cotton and manufactures of	9,510	16,213
Earthenware, etc.	535	599
Fibers and textiles	10,631	9,649
Fish	949	481
Fruits and nuts	193,373	287,603
Glass and glassware	4,409	6,318
Hides and skins	84,092	126,425
Honey	21,977	34,048
Instruments for science purposes	3,834	1,557
Iron, steel and manufactures of	7,980	25,962
Machinery and parts of	8,454	17,417
All other manufactures of iron, etc.	17,208	24,085
Jewelry	67,969	18,916
Leather and manufactures of	9,969	22,116
Marble and stone	800	1,283
Molasses	1,282	177
Musical instruments and parts	5,024	5,614
Oils	867	155
Paints, varnish, etc.	2,006	1,724
Paper and manufactures of	759	1,988
Provisions, etc.	6,981	7,499
Rice	84,414	223,012
Silk, manufactures of	7,748	10,127
Spirits, Wines, etc.	2,174	2,400
Straw and palm leaf, manufactures of	747	559
Sugar, brown	33,946.036	23,840,803
Sugar, refined	1,166,001	1,654,624
Tobacco, manufactures of	7,084	1,764
Toys	1,937	748
Vegetables	6,573	3,343
Wood and manufactures of	48,673	47,543
Wool, raw	53,558	45,883
Wool, manufactures of	5,410	8,358
All other articles	69,238	82,931
Total shipments domestic merchandise	36,069,109	\$26,850,463
Total shipments foreign merchandise	42,946	31,736
Total to United States	\$36,112,055	\$26,882,199

Hawaii's Commerce with Foreign Countries.

Total Import and Export Values for 1905 and 1906.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Countries.	Imports.		Exports.	
	1905	1906	1905	1906
Austria-Hungary.....	\$ 162	.....	.....	.....
Belgium.....	18	\$ 6,806	.....	.....
British Columbia.....	10,542	10,775	\$ 11,483	\$ 15,303
Canada.....	5,630	11,726	.....	.....
Denmark.....	378	.....	.....	.....
Great Britain.....	305,879	424,976	810	5,512
Germany.....	544,534	171,497	1,324	391
France.....	14,967	9,732	.....	.....
Italy.....	5,403	1,366	.....	.....
Netherlands.....	2,768	3,429	.....	.....
Portugal.....	13	484	.....	.....
Spain.....	3,545	3,850	.....	.....
Sweden and Norway.....	130	211	.....	.....
Chile.....	448,278	448,608	.....	2,778
China.....	6,022	3,984	1,081	.....
East Indies.....	347,782	415,131	.....	.....
Hong Kong.....	174,129	245,244	9,016	2,004
Japan.....	962,651	1,247,470	21,909	20,080
Australasia.....	154,687	262,594	5,299	8,348
Oceania.....	24,893	1,182	6,815	742
Philippines.....	2,500	6,051	6	2,155
United States*.....	11,753,180	12,036,675	36,112,055	26,882,199
All other.....	53	126	.....	.....
Total.....	\$14,768,144	\$15,311,917	\$36,171,596	\$26,939,512

* Not including coin shipments.

Exports and Imports for fiscal year ending June 30, 1906.

Exports—Domestic produce to United States.....	\$26,850,463
Foreign produce to United States.....	31,735
Coin shipments to United States.....	55,312
Domestic produce to Foreign Countries.....	53,028
Foreign produce to Foreign Countries.....	4,285
Total export value.....	\$26,994,824
Imports—Domestic produce from United States.....	\$11,771,155
Foreign produce from United States.....	265,520
Coin shipments from United States.....	327,957
Produce from Foreign Countries.....	3,275,242
Total import value.....	\$15,639,874

Quantity and Value of Principal Articles of Domestic Produce Shipped to U. S. for the fiscal year ending June 30, 1906.

Articles		Quantity	Value
Sugar, raw	pounds.....	712,560,997	\$23,840,803
Sugar, refined	"	34,041,640	1,654,624
Coffee, raw	"	2,147,154	248,593
Rice	"	5,739,500	223,012
Fibers .....	.....	.....	9,649
Fruits, green .....	.....	.....	131,806
canned .....	.....	.....	152,582
all other .....	.....	.....	2,521
Honey .....	.....	.....	34,048
Beeswax	pounds.....	22,249	6,745
Hides and skins.....	"	1,136,994	126,425
Wool, raw	"	313,366	45,883
Taliow	"	178,942	7,046
Molasses	gallons.....	3,180	177

Comparative Table Importations from Japan, 1901-1905.

Courtesy of Dr. A. Marques.

Articles.	1901-1902	1902-1903.	1903-1904.	1904-1905.
Sake and Wines.....	\$212,981	\$205,526	\$ 171,856	\$154,366
Rice and its flour....	148,251	236,076	446,121	222,686
Vegetables	97,498	92,273	87,424	79,502
Sauces	91,930	118,155	138,540	115,747
Cotton Wares.....	67,373	52,413	50,302	48,225
Fish	53,735	61,608	78,131	80,088
Breadstuffs	26,286	20,420	24,096	18,930
Woodwork	24,298	25,170	24,499	24,030
Silks	10,215	24,206	23,495	27,129
Tea	9,562	14,239	15,883	10,173
Provisions	4,252	2,035	2,130	796
Coal (bituminous)...	.....	.....	5,466	38,449
All others.....	164,207	118,470	137,112	142,536
Total	\$910,686	\$970,591	\$1,205,055	\$962,651

EXPLANATORY.—This issue of the Annual is compelled to omit several Custom House tables that had, by virtue of over thirty years' continuance become one of its features, and in recognition of its value as the reference book of Hawaii the courtesies extended the publisher in this respect by successive Customs Officials up to the time of annexation were authorized by the Treasury Department at Washington, under date of April 24, 1901, to be continued. Acting thereunder, Collector E. R. Stackable has kindly furnished from year to year the required tables after the annual reports had been sent to Washington, but in his absence this year the the Acting Collector declined to do so, stating that "he did not consider the permit above referred to entitled the Annual to perpetual privilege." Hence, the absence of the local tables supplementing our usual compilations from the Summary of Commerce and Finance.

Hawaiian Sugar Plantation Statistics.

Year	Sugar.		Molasses.		Total export Value.
	Pounds	Value.	Gallons.	Value.	
1875.....	25,080,182	\$ 1,216,388.82	93,722	\$ 12,183.85	\$ 1,228,572.68
1876.....	26,072,429	1,272,334.53	130,073	19,510.95	1,291,845.48
1877.....	25,575,965	1,777,529.57	151,462	22,719.30	1,800,248.87
1878.....	38,431,458	2,701,731.50	93,136	12,107.68	2,713,839.18
1879.....	49,020,972	3,109,566.65	87,475	9,622.52	3,119,185.91
1880.....	63,584,871	4,322,711.48	108,355	29,753.52	4,352,464.73
1881.....	93,789,483	5,395,399.54	263,587	31,630.44	5,427,020.98
1882.....	114,177,938	6,320,890.65	221,293	33,193.95	6,354,084.60
1883.....	114,107,155	7,112,981.12	193,997	34,819.46	7,147,800.58
1884.....	142,654,923	7,328,896.67	110,530	16,579.51	7,345,476.17
1885.....	171,350,314	8,356,061.94	57,941	7,050.00	8,363,111.94
1886.....	216,223,615	9,775,132.12	113,137	14,501.76	9,789,633.88
1887.....	212,763,647	8,694,964.07	71,222	10,522.76	8,705,486.83
1888.....	235,888,346	10,818,883.09	47,965	5,900.40	10,824,783.49
1889.....	242,165,835	13,089,302.10	54,612	6,185.10	13,095,487.20
1890.....	259,789,462	12,159,585.01	74,926	7,603.29	12,167,188.30
1891.....	274,983,580	9,550,537.80	55,845	4,721.40	9,555,258.20
1892.....	263,636,715	7,276,549.24	47,988	5,061.07	7,281,610.34
1893.....	330,822,879	10,200,958.37	67,282	5,928.96	10,206,887.33
1894.....	306,684,993	8,473,009.10	72,979	6,050.11	8,479,059.21
1895.....	294,784,819	7,975,590.41	44,970	3,037.83	7,978,628.24
1896.....	443,566,282	14,932,172.82	15,885	1,209.72	14,933,382.54
1897.....	520,158,232	15,390,422.13	33,770	2,892.72	15,393,314.85
1898.....	444,963,036	16,614,622.53	14,537	919.18	16,615,541.71
1899.....	545,370,537	21,898,190.97	11,455	358.55	21,898,549.52
1900*.....	344,531,173	13,919,400.21	120	10.00	13,919,410.21
1901**.....	690,882,132	27,094,155.00	93,820	4,615.00	27,098,770.00
1902.....	720,553,357	23,920,113.00	48,036	2,187.00	23,922,300.00
1903.....	774,825,420	25,310,684.00	10	1.00	25,310,685.00
1904.....	736,491,992	24,359,385.00	11,187	712.00	24,360,097.00
1905.....	832,721,637	35,112,148.00	26,777	1,282.00	35,113,430.00
1906.....	746,602,637	24,495,427.00	3,180	177.00	24,495,604.00

* Five and one-half months to June 14. ** Fiscal year ending June 30.

Nationality of Plantation Labor, 1905.

American	654	Japanese	28,030
Portuguese	3,194	Koreans	4,893
Other Europeans	455	Chinese	3,938
Hawaiians	1,711	Others	45
Porto Ricans	2,029		
		Total	44,949

Hawaii's Annual Trade Balance, etc., from 1880.

(Latter years from Auditor's Report.)

Year.	Imports.	Exports.	Excess export Values.	Custom house Receipts.
1880.....	\$ 3,673,268.41	\$ 4,968,444.87	\$ 1,295,176.46	\$ 402,181.63
1881.....	4,547,978.64	6,885,436.56	2,337,457.92	523,192.01
1882.....	4,974,510.01	8,299,019.70	3,324,506.69	505,390.98
1883.....	5,624,240.00	8,133,343.88	2,509,103.79	577,332.87
1884.....	4,637,514.22	8,856,610.30	4,219,096.08	551,736.59
1885.....	3,830,544.58	9,158,818.01	5,328,273.43	502,337.38
1886.....	4,877,738.73	10,565,885.58	5,688,146.85	580,444.04
1887.....	4,943,840.72	9,707,047.33	4,763,206.61	595,002.64
1888.....	4,540,887.46	17,707,598.76	7,166,711.30	546,142.63
1889.....	5,438,790.63	13,874,341.40	8,435,560.77	550,010.16
1890.....	6,962,201.13	13,142,829.48	6,180,628.35	605,956.91
1891.....	7,439,482.65	10,258,788.27	2,819,305.62	732,594.93
1892.....	4,028,295.31	8,060,087.21	4,031,791.90	494,385.10
1893.....	4,363,177.58	10,818,158.09	6,454,980.51	545,754.16
1894.....	5,104,481.43	9,140,794.56	4,036,313.13	522,855.41
1895.....	5,339,785.04	8,474,138.15	3,134,353.11	547,149.04
1896.....	6,063,652.41	15,515,230.13	9,451,577.72	656,895.82
1897.....	7,682,628.09	16,021,775.19	8,339,147.10	708,493.05
1898.....	10,368,815.09	17,346,744.79	6,977,929.70	806,675.70
1899.....	16,069,576.96	22,628,741.82	6,559,164.86	1,295,628.95
1900*.....	10,231,197.58	14,404,496.16	4,173,298.58	597,897.14
1901**.....	24,964,693.43	29,342,697.00	4,378,003.57	1,264,862.78
1902.....	22,036,583.00	24,793,735.00	2,757,152.00	1,327,518.23
1903.....	13,982,485.00	26,275,438.00	12,292,953.00	1,193,677.83
1904.....	15,784,691.00	25,204,875.00	9,420,184.00	1,229,338.15
1905.....	14,718,483.00	36,174,526.00	21,456,043.00	1,043,340.38
1906.....	15,639,874.00	26,994,824.00	11,354,950.00	.....

* Five and one-half months to June 14th. ** Twelve and one-half months to June 30, 1901. Imports from U. S. ports for 190 estimated at \$22,000,000, and for 1902 at \$19,000,000.

Summary of Insurance Business, Territory of Hawaii, for the year 1905.

From Report of Insurance Commissioner, 1906.

Class.	Amount Written	Amount Premiums	Losses and Claims paid
Fire	\$25,215,592	\$ 385,347	\$ 34,155
Marine	30,479,210	259,429	47,709
Life, new	} 1,683,035	69,232	} 243,610
“ renewals		420,602	
Accident, etc. ....	.....	12,750	4,351
Surety .....	.....	16,732	.....
Liability .....	.....	5,662	2,348
Plate Glass .....	.....	889	.....
Burglary .....	.....	26	.....
Total	\$57,377,837	\$ 1,170,669	\$ 332,173

**Table of Receipts, Expenditures, and Public Debt of Hawaii,
for Biennial Periods up to 1894, then Annually.**

(Latter years from Auditor's Report.)

Years.	Revenue.	Expenditures.	Cash Balance in Treasury.	Public Debt.
1856.....	\$ 419,288.16	\$ 424,778.25	\$ 28,096.84	\$ 22,000.00
1858.....	537,223.86	599,879.61	349.24	60,679.15
1860.....	571,041.71	612,410.55	13,127.52	128,777.32
1862.....	528,039.92	606,893.33	507.40	188,671.86
1864.....	538,445.34	511,511.10	22,583.29	166,649.09
1866.....	721,104.30	566,241.02	169,059.34	182,974.60
1868.....	825,498.98	786,617.55	163,576.84	120,815.23
1870.....	834,112.65	930,550.29	61,580.20	126,568.68
1872.....	912,130.74	969,784.14	56,752.41	177,971.29
1874.....	1,136,523.95	1,192,511.79	746.57	355,050.76
1876.....	1,008,956.42	919,356.93	89,599.49	459,187.59
1878.....	1,151,713.45	1,110,471.90	130,841.04	444,800.00
1880.....	1,703,736.88	1,495,697.48	338,880.44	388,900.00
1882.....	2,070,259.94	2,282,599.33	126,541.05	299,200.00
1884.....	3,092,085.42	3,216,406.05	2,220.42	898,800.00
1886.....	3,010,654.61	3,003,700.18	9,174.85	1,065,600.00
1888.....	4,812,575.96	4,712,285.20	109,465.60	1,936,500.00
1890.....	3,632,196.85	3,250,510.35	491,152.10	2,599,502.94
1892.....	3,916,880.72	4,095,891.44	312,141.38	3,217,161.13
1894.....	3,587,204.98	3,715,232.83	184,113.53	3,417,459.87
1894.....	1,972,135.43	1,854,053.08	69,225.76	3,574,030.16
1895.....	2,050,729.41	2,284,179.92	302,676.27	3,764,335.03
1896.....	2,383,070.78	2,137,103.38	315,193.16	3,914,608.35
1897.....	2,659,434.16	2,617,822.89	456,804.43	4,390,146.65
1898.....	2,709,489.12	2,299,937.57	740,280.21	4,457,605.85
1899.....	3,854,231.50	3,038,638.38	1,531,784.29	4,890,351.49
1900.....	2,772,871.87	3,727,926.28	624,471.25	4,226,374.61
1901.....	2,140,297.36	2,576,685.53	287,131.30	939,970.31
1902.....	2,473,172.81	2,382,968.90	77,914.36	1,093,970.31
1903.....	2,387,715.88	2,603,194.20	56,613.29	2,185,000.00
1904.....	2,415,356.33	2,844,054.81	68,592.03	3,317,000.00
1905.....	3,320,998.90	3,045,076.02	335,331.37	3,861,000.00

Hawaii's Bonded Debt, June 30, 1906.

Stock A 5 per cent. Bonds (Act of 1896).....	\$ 153,000
Fire Claims Bonds issued.....	315,000
Public Improvement 4½% Bonds, 1903-04.....	1,000,000
Public Improvement 4¼% Bonds, 1904-05.....	1,000,000
Refund Bonds, 1905.....	600,000
Public Improvement 3½% Bonds.....	750,000

Total Bonds Outstanding.....\$3,818,000

INTERNAL TAXES FOR BIENNIAL PERIODS 1880-1904; SINCE, ANNUAL

Bien'l Periods Ending March	Real Estate	Personal Property	Poll	Horses	Ins'ance	Dogs	Ca'r'ges	Seamen	Roads Carts and Bicycles	School	Totals
1880.....	\$ 143,716	\$ 115,944	\$ 35,484	\$ 43,399	\$	\$ 15,173	\$ 5,780	815	\$ 64,940	\$ 67,472	\$ 532,723
1882.....	187,929	208,006	45,948	42,819	.....	13,995	7,125	642	90,041	87,322	683,937
1884.....	223,100	254,286	52,964	21,975	1,941	13,924	8,750	402	103,054	100,278	780,674
1886.....	227,195	262,307	61,745	*	3,303	13,315	10,635	114	118,256	115,298	812,167
1888.....	232,362	299,974	63,115	.....	0,273	11,985	11,835	.....	120,872	119,565	885,987
1890.....	330,390	329,908	69,116	.....	3,063	14,100	13,940	.....	132,285	131,160	1,032,963
1892.....	338,745	341,205	78,994	.....	4,150	13,660	14,628	.....	152,137	151,906	1,115,401
1894.....	338,844	213,126	78,990	.....	3,867	11,741	11,980	.....	152,268	152,247	1,068,592
1894 9 months.	167,083	151,580	39,050	.....	1,850	4,698	4,427	.....	74,891	75,082	522,583
1895.....	196,668	164,272	43,663	.....	1,803	5,971	5,425	.....	84,183	83,470	592,692
1896.....	240,971	210,194	46,655	.....	1,837	6,302	5,889	.....	90,297	89,443	698,841
1897.....	246,828	242,719	47,973	Income	.....	7,313	5,849	.....	101,858	95,814	759,703
1898.....	268,203	266,621	49,580	.....	2,185	6,248	5,717	.....	105,814	98,974	811,818
1899.....	384,594	377,075	54,828	.....	2,883	6,141	6,253	.....	116,374	109,814	1,068,117
1900.....	440,265	487,078	67,119	.....	3,224	5,377	7,241	.....	141,342	134,232	1,295,158
1901.....	521,451	571,964	50,829	279,743	3,810	4,589	8,397	.....	108,829	101,258	1,959,854
1902.....	560,111	584,112	46,369	192,506	4,663	3,864	9,072	.....	100,684	92,734	1,605,460
1903.....	609,241	593,288	49,490	187,497	4,681	4,404	9,864	.....	107,650	98,980	1,678,362
1904.....	615,127	562,382	49,531	155,786	56	4,543	9,427	.....	107,885	99,062	1,617,468
1905.....	663,009	667,850	49,020	326,733	.....	5,161	9,670	14,738	107,156	98,040	1,941,383

Annual Taxes, from 1896, Showing per Capita Rate Collected.

	Taxes collected	Per capita*	Taxes collected	Per capita*	
896	\$ 698,844	\$ 6.32	1901	\$1,659,854	\$ 10.77
897	759,707	6.54	1902	1,605,460	10.42
898	811,818	6.45	1903	1,678,362	10.59
899	1,068,117	7.11	1904	1,617,468	10.50
900	1,295,158	8.41	1905	1,941,383	12.50

* Omitting fractions.

* Omitting fractions.

Summary of Meteorological Observations.

Compiled from U. S. Weather Bureau Records, by Wm. B. Stockman, Section Director.
(Continued from preceding Annals)

MONTH	BAROMETER		REL. HUM.		MEAN TEMPERATURE			ABSO. HUM.	
	8 a.m.	8 p.m.	8 a.m.	8 p.m.	Min.	Max.	6 a.m. 2 p.m. 9 p.m.	MEAN OF MAX & MIN	Gr. to Cloud Cu. ft. Amt. Wind Force
July	30.005	29.989	67.6	71.8	71.7	81.4	72.8	74.5	76.6 6.97 5.0 8.8
August	30.023	30.013	69.7	68.8	72.6	82.3	74.1	81.2	77.4 6.87 5.4 8.9
September	30.003	29.984	70.6	71.1	71.8	81.7	73.4	80.5	76.8 7.07 5.0 8.9
October	30.016	30.000	67.5	71.2	70.8	80.7	72.5	79.2	74.4 75.8 6.66 5.5 8.7
November	30.025	30.013	71.7	74.1	69.7	79.5	71.6	78.4	72.9 74.6 6.83 5.5 7.7
December	30.071	30.051	70.2	69.3	67.0	76.7	68.5	75.4	71.2 71.8 5.96 5.1 8.2
January	29.981	29.957	68.9	68.7	65.2	75.2	67.5	74.0	69.9 70.2 5.51 5.1 9.7
February	30.070	30.054	70.5	71.8	65.8	76.2	66.8	75.0	69.8 71.0 5.85 4.4 7.8
March	30.018	29.998	67.2	65.5	63.5	74.2	64.9	73.2	67.5 68.8 5.10 5.7 9.1
April	30.087	30.070	65.2	69.7	69.1	79.0	70.3	77.7	72.1 74.0 6.07 3.9 8.6
May	30.078	30.072	65.4	69.1	70.0	79.1	71.5	77.3	73.2 74.6 6.27 5.7 8.9
June	30.066	30.049	64.6	69.9	72.9	81.9	74.2	80.8	75.1 77.4 6.67 5.0 8.4
Year	30.037	30.021	68.3	70.1	69.2	79.0	70.7	77.7	72.7 74.1 6.32 5.1 8.6

TABLE OF RAINFALL, PRINCIPAL STATIONS.

Compiled from Weather Bureau Reports.

Stations	Observers	1905					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea	C. C. Kennedy....	8.41	11.53	20.06	10.08	26.03	13.22
Hilo (Town).....	L. C. Lyman.....	10.01	12.11	18.85	10.09	25.86	11.75
Kaumana	J. E. Gamalison....	19.18	21.45	27.16	14.26	28.69	13.13
Pepeekeo	W. H. Rogers....	9.35	12.63	14.29	9.49	24.04	10.87
Hakalau	J. M. Ross	12.39	16.99	19.31	9.99	37.33	12.67
Laupahoeheoe	E. W. Barnard....	15.52	20.05	23.55	14.45	29.85	12.55
Ookala	W. G. Walker....	9.84	15.47	.....	16.12	16.24	9.22
Kukaiau	E. Madden	6.24	10.32	14.25	8.62	12.01	8.54
Paaupahu.....	Jas. Gibb.....	5.07	6.48	11.19	3.97	5.81	6.38
Honokaa	S. Gundelfinger..	5.82	6.53	12.06	4.72	5.53	6.49
Waimea	Mrs. E. W. Hay ..	3.52	3.12	4.33	1.57	1.54	1.80
Kohala	Dr. B. D. Bond....	2.92	5.90	7.84	3.83	4.96	5.47
Holualoa	L. S. Aungst.....	7.26	10.60	6.35	3.20	5.45	2.60
Kealakekua.....	Rev. S. H. Davis ..	8.40	12.60	9.12	4.53	7.94	2.74
Naalehu	C. Wolters.....	2.49	2.60	3.53	2.17	7.69	2.54
Pahala	H. D. Harrison....	1.85	2.25	2.06	2.43	9.71	0.59
Volcano House..	Geo. Lycurgus....	4.31	8.55	9.62	9.15	7.65	4.35
Pahoa	M. J. Soares.....	9.95	13.67	12.83	14.67	20.27	11.55
Kapoho	H. J. Lyman.....	5.07	6.36	8.93	8.08	11.25	7.61
MAUI							
Haleakala Rh....	L. von Tempsky ..	1.99	2.66	9.99	1.43	1.94	5.27
Puomalei.....	A. McKibbin.....	3.89	6.84	11.52	6.21	3.77	6.25
Paia	J. J. Jones	1.88	3.78	4.43	4.15	1.98	4.33
Kula	Mrs. D. von Tempsky	2.08	2.56	4.51	0.35	2.24	4.86
Haiku	D. D. Baldwin....	5.47	9.90	8.45	7.82	4.57	6.46
Kipahulu.....	H. Neubaur.....	4.26	8.90	6.98	8.06	9.10	8.96
Nahiku	C. O. Jacobs.....	12.50	22.34	18.57	12.74	24.24	15.25
Wailuku	Bro. Frank.....	1.16	1.05	2.25	0.31	0.90	2.45
OAHU							
Honolulu.....	U. S. Weather Bureau..	0.98	2.20	1.82	1.47	2.18	2.85
Punahou.....	R. C. Lydecker....	2.54	3.64	3.88	2.45	2.05	3.43
Kinau Street....	W. R. Castle.....	1.28	2.73	2.28	1.36	1.88	3.28
Manoa	F. N. Parker.....	6.92	15.97	17.10	10.55	8.19	5.99
Kalihi-uka	Dr. Geo. H. Muddy...	7.97	17.76	13.95	11.23	15.51	9.01
Nuuanu Ave.....	W. W. Hall	2.28	4.19	2.85	3.66	2.91	3.78
Electric Lt. St..	Frank De Mello....	3.53	9.09	6.70	7.66	8.57	4.22
Luakaha	L. A. Moore.....	9.64	20.43	17.78	13.75	18.07	13.79
Waimanalo.....	A. Irvine.....	2.99	2.74	2.33	0.88	3.86	5.42
Maunawili	Jno. Herd.....	5.52	7.29	7.14	3.32	9.56	9.78
Ahuimanu	H. R. Macfarlane ..	6.76	8.53	10.64	5.03	11.60	9.39
Kahuku	R. I. Christophersen...	2.60	2.11	5.51	2.22	3.65	2.61
Ewa Plantation..	G. F. Renton.....	0.08	1.94	0.74	0.71	1.03	1.34
Wahiawa	B. O. Clark.....	4.15	2.85	2.33	4.20	2.87	2.24
Waiawa	W. R. Waters.....	3.53	4.49	3.42	4.35	5.42	3.44
KAUAI							
Grove Farm.....	G. N. Wilcox.....	2.21	4.65	4.59	2.69	8.78	2.22
Kealia	W. Jarvis.....	2.03	3.74	1.74	1.67	8.29	2.04
Kilauea.....	L. B. Boreiko....	4.08	7.66	4.64	4.01	11.03	2.69
Hanalei	E. G. K. Deverill ..	8.21	15.46	7.88	10.53	17.11	10.00
.....	McBryde Sugar Co....	0.30	1.00	0.75	1.30	7.72	0.17
.....	F. L. Zoller.....	1.31	2.69	2.51	1.88	11.25	1.51

TABLE OF RAINFALL.

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Throughout the Hawaiian Islands, 1905-06.

By Wm. B. Stockman. Continued from last Annual.

Locality	Feet Elev.	1906						
		Jan.	Feb.	Mar.	April	May	June	Annual
HAWAII								
Waiakea	50	4.91	1.86	1.63	7.72	9.45	6.01	120.91
Hilo	100	4.14	1.99	1.75	8.32	9.25	6.01	120.13
Kaumana	1050	3.25	2.77	2.17	12.07	16.49	6.86	167.48
Pepeekeo	100	4.53	1.77	4.00	6.26	7.86	6.66	111.75
Hakalau	200	6.26	2.19	6.07	8.63	10.84	8.17	150.84
Laupahoehoe	500	2.45	3.70	6.40	20.38	7.31	5.20	161.41
Ookala	400	1.67	2.00	5.93	14.66	8.27	4.47	.....
Kukaiau	250	0.23	1.64	3.61	11.61	4.72	2.81	84.60
Paauihau Mill	300	0.96	0.85	2.02	7.60	2.94	1.39	54.66
Honokaa	470	1.54	0.84	2.63	7.82	2.84	1.22	58.04
Kamuela	2720	7.75	1.24	4.81	5.71	4.67	1.10	41.16
Kohala Mission	521	5.19	1.81	3.50	0.40	6.10	1.85	57.77
Holualoa	1350	5.09	0.45	1.38	4.33	4.57	5.56	56.84
Kealahakua	1580	4.47	0.66	1.76	5.74	7.73	5.91	71.60
Naalehu	650	5.34	0.44	0.24	0.61	2.70	1.34	31.69
Pahala	850	1.60	1.72	1.19	0.39	3.46	0.21	27.46
Kilauea Crater	4000	4.00	2.15	1.88	4.45	6.65	2.49	65.25
Puna Plantation	600	11.19	4.70	2.53	11.47	7.25	8.45	128.53
Kapoho	110	5.39	2.47	2.25	6.94	6.43	.....	.....
MAUI								
Haleakala Ranch	2000	7.96	0.24	7.76	4.84	2.14	0.73	46.95
Puomalei	1400	7.46	0.82	7.02	6.60	3.84	1.51	65.73
Paia	180	3.91	1.04	4.03	2.51	1.69	0.71	34.44
Erehwon	4000	15.33	1.34	.....	0.32	2.99	.....	.....
Haiku	700	5.47	1.45	6.28	6.27	3.87	2.42	68.43
Kipahulu	308	3.09	2.15	2.17	3.94	6.91	4.45	68.97
Nahiku (lower)	850	14.15	4.42	9.25	11.81	10.38	9.97	165.22
Wailuku	250	6.07	0.43	3.87	1.70	0.51	2.07	20.77
OAHU								
U. S. W'th'r B're'u	108	2.21	0.26	1.65	0.18	1.02	0.66	17.48
Punahou	44	3.53	0.43	2.00	1.13	1.24	.....	.....
Kinai Street	50	2.82	0.20	.....	.....	.....	.....	.....
Woodlawn Dairy	285	4.43	1.73	4.28	7.82	6.17	5.77	94.92
Kalihi Valley	485	3.92	3.10	4.80	7.59	6.30	7.55	108.69
Nuuanu Avenue	50	3.05	0.62	1.79	0.72	2.44	2.25	30.54
Nuuanu Elec. St'n	405	3.18	1.50	2.33	2.95	2.73	2.95	55.41
Nuuanu Wat'r W's	850	4.91	3.90	4.79	10.34	10.19	9.00	136.59
Waimanalo	25	3.79	0.55	7.90	2.15	1.17	0.96	34.74
Maunawili	250	4.34	2.31	5.91	4.38	5.16	2.56	67.27
Ahuimanu	350	4.25	1.40	4.72	3.65	6.67	3.24	75.88
Kahuku	25	4.42	0.64	2.39	0.97	1.74	0.59	29.45
Ewa	50	3.23	0.50	1.62	0.02	.....	0.09	.....
Wahiawa	870	4.96	0.74	3.50	0.86	3.92	2.10	34.72
Waiawa	675	4.22	0.55	1.52	0.83	3.02	2.31	37.10
KAUAI								
Lihue	200	3.22	1.08	2.47	1.95	2.73	1.76	38.35
Kealia	15	2.40	0.68	2.67	2.08	2.56	1.39	31.21
Kilauea	342	2.86	0.91	5.48	2.34	2.82	2.29	50.81
Hanalei	10	4.16	2.48	5.33	7.69	.....	.....	.....
Eleele	150	3.40	0.30	0.82	0.55	0.96	0.28	17.55
Koloa	100	2.27	0.58	0.85	1.31	2.02	0.22	28.40

NOTABLE TRIPS OF PACIFIC OCEAN STEAMERS.

TRIP.	MILES.	STEAMER.	DATE.	D.	H.	M.
San Francisco to Honolulu,	2100	China	Aug., 1899	5	9	55
" " "	2100	Korea	Jan. 1903	4	22	15
" " "	2100	Siberia	Aug., 1905	4	19	20*
Honolulu to San Francisco,	2100	Mariposa	May, 1898	5	22	0
" " "	2100	China	Nov., 1902	5	2	16*
" " "	2100	Nippon Maru	Jan., 1900	5	2	21
San Francisco to Yokohama,	4764	China	Oct., 1903	9	4	17*
Yokohama to San Francisco,	4537	Korea	Sept., 1905	10	11	0
" " "	4537	Siberia	Oct., 1905	10	10	28*
Yokohama to Honolulu,	3400	China	Dec., 1897	8	6	15*
" " "	3400	Coptic	Feb. 1902	9	2	17
San Francisco to Sydney,	7297	Alameda	Dec., 1895	21	10	0*
Auckland to Sydney,	1286	Sonoma	Jan., 1902	3	8	40*
Auckland to Honolulu,	3810	Mariposa	April, 1882	11	10	0*
" " "	3810	Alameda	July, 1897	11	10	35
Sydney to Auckland,	1286	Zealandia	Dec., 1890	3	20	51*
Honolulu to Samoa,	2279	Mariposa	Jan., 1886	6	7	45
" " Victoria,	2342	Warrimoo	July, 1896	6	22	19
" " "	2342	Manuka	June, 1904	6	14	50*
Victoria to Honolulu,	2360	Warrimoo	Jan., 1896	7	1	9
" " "	2360	Maheno	Aug., 1906	6	12	0*
Vancouver to Sydney,	6909	Warrimoo	Nov., 1895	20	15	17*
Honolulu to Sydney,	4865	Manuka	July, 1904	13	16	55†
Sydney to Honolulu,	—	Miowera	Aug., 1906	14	0	30
" " "	4865	Manuka	July, 1905	14	17	12†
" " "	4865	Maheno	April, 1906	13	22	50†*
Sydney to Vancouver,	6670	Warrimoo	April, 1896	21	4	23*

* Best record trips.

† Including all stops.

Clipper Passages to and from the Islands.

- 1859—Ship Black Hawk, 9 days and 9 hours from San Francisco.
 1861—Ship Fair Wind, 8 days and 17½ hours from San Francisco.
 1862—Ship Storm King, 9 days and 10 hours from San Francisco.
 1879—Schooner Claus Spreckels, 9½ days from San Francisco to Kahului.
 1880—Schooner Jessie Nickerson, 10 days from Honolulu to Humboldt.
 1881—Brgtne. W. G. Irwin, 8 days and 17 hours from S. F. to Kahului.
 1884—Schooner Emma Claudina, 9 days and 20 hours from Hilo to S. F.
 1884—Schooner Rosario, 10 days from Kahului to San Francisco.
 1884—Brgtne. Consuelo, 10 days from Honolulu to San Francisco.
 1886—Bark Hesper, 9½ days from Honolulu to Cape Flattery.
 1893—Bktne. Irmgard, 9 days and 16 hours from San Francisco.
 1893—Bktne. S. G. Wilder, 9 days and 14 hours from San Francisco.
 1896—Ship Henry B. Hyde, 102 days from New York.
 1898—Bark Rhoderic Dhu, 9½ days from Hilo to San Francisco.
 1902—Ship Erskine M. Phelps, 97 days from Norfolk, Va.
 1902—Ship John Currier, 35 days from Newcastle, N. S. W.
 1902—Bktne. Lahaina, 12½ days from Eleele, Kauai, to Portland, Ore.
 1903—Bark Annie Johnson, 8 days and 16 hours from San Francisco.
 1904—Ship Dirigo, 36 days from Shanghai to Honolulu.
 1906—Ship Star of Bengal, 33 days from Newcastle, N. S. W., to Honolulu.

TABLE OF ANNUAL LICENSE FEES.

Territory of Hawaii.

FEE AND STAMP.		FEE AND STAMP.	
<i>Alcohol</i>	\$ 51.00	which the vehicle has a	
<i>Awa</i> —upset price at auction:		carrying capacity, and	
District of Honolulu.....	1020.00	stamp.	
" Hilo or Wailuku	510.00	<i>Horseshoer and Farrier</i>	5.50
" Lahaina	255.00	<i>Livery Stable</i>	
Each other District.....	102.00	District of Honolulu.....	51.00
(Including stamps.)		" Wailuku or Hilo.	26.00
<i>Auction</i> —District of Honolulu	613.00	<i>Liquors, etc.</i> —1st class.....	6.50
Each other District.....	16.50	2nd class	5.50
<i>Agent to take Acknowledgments.</i>		3rd class	511.00
Each District or Judicial		4th class	511.00
Circuit	5.50	5th class	103.00
<i>Banking</i>	765.00	<i>Lodging or Tenement House</i>	2.50
<i>Billiard</i> —each table.....	26.00	<i>Milk</i>	3.00
<i>Bowling Alley</i> —each alley....	26.00	<i>Notary Public</i> —Honolulu ..	10.50
<i>Beef Butcher</i> —"Slaughter and		Each other Judicial Circuit	5.50
Sell," Honolulu	103.00	<i>Pawn Broker</i>	51.00
Each other District.....	21.50	<i>Peddling Cake</i>	26.00
<i>Beef Butcher</i> —"Sell," each		<i>Poisonous Drugs</i>	51.00
District	10.50	<i>Pork Butcher</i> —"Slaughter"	
<i>Boat</i> —With 4 or more oars..	8.50	and "Sell", Honolulu....	41.00
With less than 4 oars.....	4.50	Each other District.....	20.50
<i>Boatman</i>	1.50	<i>Pork Butcher</i> —"Sell"	10.50
<i>Dray, Cart, Wagon, etc.</i>	3.00	<i>Public Show</i> —For each per-	
<i>Driver</i>	1.50	formance	5.50
<i>Emigrant Agent</i>	510.00	<i>Salmon</i>	10.50
<i>Foreign Corporation</i>	306.00	<i>Second Hand Dealers</i>	26.00
<i>Insurance Agent</i>	2.50	<i>Social Club Tax</i> (where	
Certif. of Authority.....	10.50	liquor is an essential fea-	
<i>Hack and Passenger Vehicle</i> —		ture)	200.00
\$1.00 for each person for		<i>Steam Laundry</i>	51.00
		<i>Stock and Share Business</i> ...	102.00
		<i>Tobacco</i>	10.50

Seating capacity of principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street.....	1,500
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street.....	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
Progress Hall, corner Fort and Beretania streets.....	500
Hawaiian Opera House, King street.....	1,000
The Orpheum, Fort street.....	945
Y. M. C. Association Hall, Hotel street.....	250

HEIAUS AND HEIAU SITES THROUGHOUT THE HAWAIIAN ISLANDS.

OMITTING KOAS, OR PLACES OF OFFERING TO KUULA, THE DEITY OF
FISHER FOLK.

A preliminary list, now compiled for the first time, by Thos. G. Thrum.

ISLAND OF KAUAI.

Names.	Location.	Remarks.
Hanakalauae.....	Mahaulepu, Koloa.—	Of large size, destroyed years ago by Fredenberg, to erect cattle pens with its stones.
Kaneiohouma.....	Poipu, Koloa.—	Size 102x180 feet, lying nearly east and west along shore close to the beach; of three terraces, with two prominent and other room divisions at east or inner end: west end open; side walls 3 to 5 feet high; seaward wall 9 feet thick; east end wall very crooked, 11 feet thick, 6 feet high. Inner terrace is stone paved, middle terrace partly so, with flat slabs of coral or lime stone.
Kihouna.....	Poipu, Koloa.—	A single walled heiau situate a short distance west of the above, 100x125 feet, enclosed on all sides by walls 4 to 6 feet high, with entry way near middle of mauka wall: seaward or makai wall 8 feet thick. A section of stones as of pavement shows nearly the whole length near makai wall, and in N. E. corner is a section said to have been its altar stones.
Waiopili.....	Mahaulepu, Koloa.—	Size about 60x40 feet, site not identified.
Kanehaule.....	Kaunuaie, Koloa.—	A paved walled enclosure of large size, destroyed some time ago: a heiau where the rites of circumcision were performed.
Weliweli.....	Weliweli, Koloa.—	A paved heiau of large size. Pookanaka class; walls 4 feet high: portions of same said to be still standing.
Keolewa.....	Peak of Haupu.—	A small heiau dedicated to Laka.
Niukapukapu.....	On hill of same name, Lawai, Koloa.—	Size 41x95 feet, walls fallen and largely overgrown with lantana. Built by Kulaahiki, who planted a coconut palm at its entrance.

Names	Location.	Remarks.
Mamalu.....	Lawai.—	A small paved platform heiau about 20 feet in size, located on the beach; portion still to be seen.
Kalohiokapua.....	Lawai Valley.—	Mauka on west side on hill, a stone platform heiau about 20x20 feet, walled some 4 feet high; a place of circumcision.
Kukuuiolono.....	On hill of same name, Kalaheo.—	A large three-terraced heiau, east section being 95x112 feet, mid-section 105x83 feet and west division 105x51 feet, giving a total length of 246 feet straight on the seaward side. Near east end is a large oven; near the division wall is the kahua of the oracle house 22x30 feet, and on north side of mid-section are foundations of two houses which measure 15x42 feet. The sacrifices for this heiau were executed at some distance from it and the bodies then brought and placed on the altar that the temple be not polluted with blood.
Kahalekii.....	On western slope of Kukuuiolono hill.	A square three-terraced heiau of large size, with several divisions; was high walled and paved: class unknown. Both of these heiaus were destroyed some years ago and the stones used for cattle pens.
Huhu'akai.....	Wahulua Bay, Wahiawa.—	A medium sized heiau; portion of its walls may yet be seen. Class unknown.
Waiopili.....	Wahiawa.—	An oblong heiau of good size, walls still standing.
Kaunuolono.....	Wahiawa.—	A large heiau of square shape; part of its walls still standing. Class unknown.
Kahilinaia.....	Wahiawa-uka.—	A walled heiau of large size, long since destroyed.
Kapoho.....	Nomilu, Kalaheo.—	A large heiau mauka of the fish-pond: destroyed some years ago. Portions of its division walls yet to be seen.
Kakainahoa.....	Kalaheo.—	A paved oblong heiau of large size. All destroyed.
Nihoana.....	Eleele.—	A small heiau, about 20x30 feet, low walled. Destroyed.
Makole.....	On Makole Bluff, Hanapepe.—	A small heiau of platform character on side of bluff destroyed in the sixties; portions of wall said to be still seen.
Pualu.....	Kapahili, Hanapepe.—	A partly walled paved heiau at base of a hill, built up some six feet in front and filled in with stones, now in greatly disturbed condition: its front is also badly fallen away in places. Rear wall stands 4 feet above the heiau floor in good state though not over 4 feet thick. It measures straight on the back 135 feet, on west end 40

Names	Location.	Remarks.
		feet, curving on the front so as to give 54 feet at the middle and rounding off to a point at the east end. Of pookanaka class. Kane its deity.
.....	Akowai, Hanapepe.	—A small paved heiau of about 50 feet square, in bad condition. Said to have been erected by Kaumualii. Class unknown. Destroyed about 1865.
Kuwiliwili.....	Hanapepe Valley.	—A large high walled enclosure of pookanaka class; now destroyed.
Kauakahiunu.....	Puolo point, Hanapepe.	—A walled heiau of medium size, at the shore; part of walls still standing. Kane and Kanaloa its deities. Class unknown.
Moloku.....	Hanapepe, near peak of Kuopoo ridge at junction with Kahalau;	an open platform heiau, in fair condition.
Aakukui.....	Makaweli.	—At east branch of Kekupua valley, near junction. A paved and walled heiau in good preservation.
Kaunumelemele.....	Makaweli.	—An open platform heiau, in good condition.
Peeamoa.....	Makaweli.	—An unwallled heiau.
Kapakaniau.....	Makaweli.	—A paved open platform heiau; in good condition.
Lewaula.....	Waimea.	—An open heiau with stone foundations, made into a cattle pen some years ago by Aka.
Kaunuenuehe.....	Waimea.	—A paved heiau in good preservation.
Pohakoelele.....	Waimea.	—A paved heiau in good preservation.
Kancheenalau.....	Waimea.	—A paved heiau in good preservation.
Naulili.....	Makaweli.	—An unwallled sacred place; flat ground.
Kaahu.....	Waimea.	—An unwallled sacred place; flat ground.
Wailaau or Wiiaau.....	Waimea.	—An open platform heiau in good preservation.
Peekoa.....	Waimea.	—An open platform heiau in good preservation.
Puaola.....	Waimea.	—An open platform heiau in good preservation.
Kaunuokane.....	Waimea.	—An open platform heiau in good preservation.
Keahuamele.....	Waimea.	—An unenclosed small pile of rocks; a sacred place.
Kopahu.....	Pokii, Waimea.	—A flat sacred place.
Kaleinakauhane.....	Pokii, Waimea.	—A flat sacred place, whence the souls took their plunge to Po,—the nether world.
Mahaihai.....	Makaweli, east side of Waimea river.	—Destroyed. Site not identified.
Keaalii.....	At Keaalii, west side Waimea river.	Destroyed years ago and its stones used for fences. Fragments of foundation shows it to have been about 60 feet square.

Names	Location.	Names
Hikinaakala.....	In Waimea village.—Its foundations still to be seen, runs 272 feet along the road by 75 feet at east end and 81 feet at its west end. Some report it as a place of refuge, while others assert that the crossing of the river to Makaweli was the only puuhonua of this section of ancient Kauai.	
Pohakuhaule.....	Waimea.—Site not identified.	
Keonekapu.....	Waimea.—Site not identified. Referred to by Kamakau as a place of refuge in time of Kahamaluihi.	
Hauola.....	At Hoea, Waiawa.—A heiau of two divisions, 76x97 and 113x136 feet including evident fndtns. of two houses on side of entrance. Inner smaller section, well paved with large flat stones, stands 4 feet above outer section. Heavy walls outline the structure which stands from 4 to 8 feet high according to slope of the land; it is of open platform character; of pookanaka or awaawa class. Kane and Kanaloa its deities. In best condition of all Kauai heiaus seen.	
Elekuna.....	Near Barking sands of Mana.—This is termed a heiau by the natives of the district, and is without doubt a place of marked distinction as it was visited on various occasions by royalty; nothing of a structural character was found; simply a mound of out-cropping sandstone at the base of which were placed the offerings of devotees.	
Kahelu.....	Kahelu, Mana.—A heiau of platform character at base of the hill, about 6 feet high in front. Not of large size.	
Kapaula.....	Kolo, near Mana.—A large heiau said to be still standing, about 4 feet high against the hill. Class unknown.	
Polihale.....	Kolo, beyond Mana.—This heiau was found to be of four terraces and a base, built on the sea shore at the foot of a cliff of same name. It measured 70 feet on the front, widening at near middle of second terrace to 89 feet. Total depth 104 feet. These terraces ranged from 8 to 5 feet above each other, and beginning at its base of 6 feet depth, they ran back 33, 31, 14 and 20 feet respectively into the cliff. All stone paved, open platforms; heavy side walls 8 feet thick; base and lower terrace walls badly damaged by sea storms. Conical piles of loose stones on front edge of second and fourth terrace and two mounds on latter give evidence of comparative recent observances.	

Names	Location.	Remarks.
Kapaula.....	At Haelele.—	A large heiau of three platforms, the middle one about 30x50 feet, the others smaller.
Hooneenuu.....	In Kaunalewa gulch (south side), 250 feet ma- uka of government road, a formerly walled heiau of two tiers, one six feet above the other, platforms paved, each 20x30 feet where rites of circumcision were performed.	
.....	Kuapa, near Waiawa.—	A village shrine 18x28 feet.
.....	Waiawa.—	Of platform character 12x20 feet. A shrine.
.....	Paehu, Pokii.—	An open single platform 40x60 feet on top of a hill five miles from the sea, at an elevation of 1700 feet.
Makahoa.....	Niu, Kaunalewa.—	A village shrine.
Ahuloulu.....	At foot of Puukapele crater cone.	A series of three platforms, irregular in shape, largest being 60x50 feet. Four feet above is a walled enclosure 12x30 feet, its walls badly dilapidated. Credited to King Ola.
Ka-unu-aiea.....	In the forest of Miololii, a small shrine, on ridge of Kaunuohua.	
Kaawakoo.....	A long stone set on edge on bank of the Waialeale pool, on the summit of the mountain which derives its name therefrom. A very sacred place on which offerings are laid to this day.	
Kuhiau.....	Nawiliwili, near site of court house.—	A large paved heiau, whose enclosure covered an area of about four acres; long since destroyed. The rock Paukini, now separate from but formerly connected with the shore, was where the kahuna lived. This is said to have been the largest and most famous on Kauai in its day.
Ninini.....	Kalapaki, near site of Nawiliwili light house.	All destroyed.
Ahukini.....	Kalapaki.—	A heiau of medium size; foundations only now remain.
Pohakoelele.....	Kalapaki.—	A medium sized heiau; all destroyed.
Kalauokamanu.....	Hanamaulu.—	A large walled heiau that stood above the present mill; destroyed about 1855. Of pookanaka class.
Malae.....	Central Wailua.—	A walled and paved heiau 273x324 feet in size of traditional Menehune construction. The place of its altar is pointed out near the center toward the west wall, and around on all sides ran a ledge about six feet wide whereon the people is said to have sat during its ceremonies. The outer walls are yet standing, in good order, from 7 to 10 feet or more in height, its corners buttressed

Names	Location.	Remarks.
		with 13 foot walls. Kapule (Queen Deborah) changed this heiau about 1830, and erected division walls for cattle and calf pens with its inner structures and stone pavements. A portion is now planted to cane.
Poliahu.....	Upper Wailua.—	This heiau of medium size is situate within sight of Malae, and was connected with it in its working. In fair condition.
Holoholoku.....	Wailua.—	Of pookanaka class, site not identified. Tradition credits this heiau as being the repository until comparative modern times, of the first <i>kaeke</i> , or drum, introduced into these islands.*
Hikinaakala.....	Wailua-kai.—	The ruins of this heiau stands along the shore near the south side of the stream, 395 feet long, 56 feet at rear and 80 feet on the front. It shows three distinct divisions, paved; the inner section still in fair condition 120 feet in depth. End and S. E. corner walls are 6 feet high and 11 feet thick, of heavy stones. Two large boulders stand near the middle near the division wall of this section. The outer or front section of 80 feet includes a width that runs back beyond the division wall.
Kukui.....	At Olohena,	boundary of Lihue district. This heiau of two sections of 85 feet front and 196 feet in length show the largest stones in its construction of any visited. Though in ruins, evidence still exists of its having been paved throughout. It also has the distinction of double walls along the sides of the outer division with a four foot pathway between which led to the inner section. The end wall is entirely gone but the side walls at this point are 11 feet at the shore side and 16 feet at the sea side in thickness. The passage walls mentioned are 8 feet thick on the outer and 5 feet on the inner side.
Kuhua.....	Aliomanu,	Anahola.—Now in ruins. Class and character unknown.
Aikanaka.....	Anahola point.—	A small heiau, about 40 feet in size. All destroyed.
Hakualele.....	Kalalea peak,	Anahola.—A three terraced paved heiau about 100 feet square with low wall. Class unknown.
Kawelomamaia.....	Homaikawaa.—	Kawelo's heiau dedicated to his shark god; of pookanaka class. Foundations traceable.

* Poly. Race; Vol. 2, p. 62.

Names	Location.	Remarks.
Kaluakehulu.....	Anahola.—A large L shaped heiau with thick high walls at the base of Kahahei pali; still standing.	
Paeaea.....	Anahola.—A small round heiau, walls 8 feet high, not thick; class not known.	
Pohakuokalani.....	Kamaloa.—A paved platform heiau of husbandry class; dedicated to Ku and Hina.	
Mahewalu.....	On Olohana ridge, Kawaihau district.—Said to be of large size, round, walled and stone paved. Of pookanaka class.	
Papaa.....	Kawaipapa, Papaa.—A walled heiau 60x80 feet in size; Kamohoalii its deity. Now used as a cattle pen.	
Puwouwou.....	Papaa.—All destroyed.	
Pailio.....	Central Kilauea.—A round heiau of about 100 feet diameter; class unknown. Site covered in cane field.	
Kauluolono.....	Waipaka, Pilaa.—A walled and paved heiau of about 40 feet square; all destroyed. Foundations traceable.	
Kapuaa.....	Lepeuli.—A round heiau 50 feet in diameter, paved, walls 4 feet high; still to be seen. Class unknown.	
Kapuna.....	Pilaa.—About 100x200 feet in size, paved, walls breast high, still to be seen.	
Kapinao.....	Waiakalua-east.—A large heiau of about 200x400 feet, high walled and stone paved. Still in existence. Of pookanaka class.	
Kapuohaua'e.....	Waiakalua-uka.—A small round heiau, paved, with high walls, of husbandry class; still standing.	
Kipapa.....	Kahili.—A large heiau of some 300 by over 100 feet in size, paved, walls 5 feet high, standing in cane field in partial ruins.	
Kaihalulu.....	Kalihiwai.—A small high walled heiau of pookanaka class dedicated to Kane and Kanaloa. Destroyed years ago to help build a mill.	
Kaunonoli.....	Kalihiwai.—Destroyed years ago after use as a cattle pen.	
Kiheī.....	Kalihiwai.—A small heiau built by a chief of same name. Its walls were 8 feet high, and at his death its paving was removed and he was buried in his canoe in the enclosure.	
Kalahihi.....	West side, Kalihiwai.—Of pookanaka class. Foundations only remain, indicating it as of large size.	
Kapaka.....	Back of Hanalei.—A paved open platform heiau, without walls; stones set edgewise traversing through. Kane its deity. Said to have had connection with Kapinao at Waiakalua in its workings.	

Names	Location.	Remarks.
Pooku.....	East Hanalei.—	An unenclosed heiau of about two acres in area. Of luakini class, terraced down on all sides from the central platform. "Crow's Nest" is a local and modern name for the hill on which it stands.
Nakikoniawalaau.....	Waioli-uka.—	An open paved space, not large, dedicated to Laka, to which offerings at the annual festivities were brought.
Mamalahoa.....	Waioli.—	A small heiau 24x60 feet in size, paved, with walls 3 to 5 feet high. Of husbandry class. Kanehekili its deity; Kapihi its priest.
Kupakoili.....	Waipa.—	Reported as a small heiau; probably simply a place of offering.
Halaloa.....	At Waipa stream.—	A square heiau of about 80 feet in size, with low walls. Kane its deity. Destroyed years ago for a mill site.
Puuhewa.....	Lumahae summit.—	A paved heiau of pookanaka class, size not given; said to be still in existence. Ola was its priest.
Puomamo.....	Lumahae.—	An open heiau of about 50 feet in size, for kapa makers. Hina-kuku-kapa its deity. Portions of foundation only remain.
Kailiopaia.....	Lumahae, at shore.—	Erected by Ilio; long since destroyed.
Laumaki.....	At Laumiki, Wainiha.—	A small, open platform, paved heiau, 2 feet high, of husbandry class.
Apaukalea.....	Wainiha.—	A small walled and paved heiau, Kamapuaa its deity.
Kaunupepeiao.....	Wainiha.—	A 12-foot open paved heiau of husbandry class; probably simply a place of offering.
Kilioi.....	Haena.—	A heiau consisting of two platforms, highly terraced; very famous, very sacred and an immense structure.
Lohiau.....	Ke-e, Haena point.—	A walled heiau dedicated to Laka, goddess of the hula.
Kahuanui.....	Kalalau.—	A square, platform heiau, about 40 feet in size near the beach on bank of one of the streams from which it is walled up about 20 feet; Kane and Lono its deities.
Makaoku.....	Kalalau.—	No particulars obtained.
.....	Nuololo.—	A large triple platform heiau stands near the houses by the ladder cliff, in good state of preservation.
Kihawahine.....	Niihau.—	Heiau and puuhonua of heavy limestone slab construction; still in good condition.
.....	Niihau.—	

SUPPLEMENTARY.—Since the foregoing was in type, Mr. Francis Gay kindly adds the following names of heiaus, mainly for the Milolii and Napali sections, but without size, class, or other particulars:

Pohakuokane, in Kaahole, Milolii. Manienie, on top of Anaki, Milolii.

Kahe, Kamoalii, Kapuaapilau, and Kaunuakamalii, in Milolii.
 Kamakakiloia, and Kamakapu, in Awaawapuhi.
 Puanaie, on boundary of Nuololo and Awaawapuhi.
 Kalilioku, Kaneakalau, Kaleleoluaka, and Kaiokia, in Napali and
 Kawaipapa, at Waianuenue, Napali.

ISLAND OF OAHU.

Names	Location.	Remarks.
Kawaluna.....	Waolani, Nuuanu.—	Of heiau and luakini class, consecrated by Kualii about 1685. Tradition credits the construction of several in this locality to the time of Wakea.
Makuku.....	Upper Nuuanu.—	Heiau to propitiate rain. Site not located.
Kaahaimauli.....	Honolulu, site of Executive Building.—	Size and kind now unknown.
Mauoki.....	Kamoiiliili.—	Heiau and luakini; erected according to tradition by Menhunes with stones from Kawiwi, Waianae. Torn down about 1883 by the Minister of Interior for street work.
Helumoa.....	Apuakehau, Waikiki.—	Heiau pookanaka, the place of sacrifice of Kauhi-a-Kama, the defeated Moi of Maui, in his raid on Oahu about 1610, in the reign of Kaihikapu.
Papaenaena.....	At foot of Diamond Head slope, rear of Douglas' premises.	Heiau pookanaka, 130x70 feet in size; a walled and paved structure of open terraced front, destroyed by Kanaina about 1856, the stones used to enclose Queen Emma's premises and for road work. This heiau is the supposed place of a number of sacrifices by Kam. I. at the opening of last century, as mentioned in "Tales from the Temples" in this issue.
Kupalaha.....	Kapiolani Park, near Cunha's.—	Entirely obliterated. Class unknown, but said to have had connection in its working with Papaenaena.
Kapua.....	Near Kapiolani Park, opposite Camp McKinley.	Heiau pookanaka. Fragments of its walls, torn down in 1860, show it to have been about 240 feet square; said to be the place of sacrifice of Kaolohaka, a chief from Hawaii, on suspicion of being a spy.
Kamauakapu.....	Kapahulu, Diamond Head, 11x15.8 feet in size;	erected by Kalakaua in 1888; of husbandry class for his "Naua Society" workings. Already in partial ruins.
Kulanihakoi.....	Waikiki, site of grass house Kalakaua premises.	Ruins noticed at time of Prince of Hawaii's death, 1862; walls torn down much earlier.
Makahuna.....	Diamond Head, overlooking "Aqua Marine."—	A large heiau enclosure dedicated to Kane and Kanekoa, of Kuula character, so said.

Names	Location.	Remarks.
Pahu-a-Maui.....	Diamond Head, site of Light House station.—	All destroyed.
Kukuionapeha.....	Kaimuki, at town side of old signal station.—	All destroyed.
Manua.....	Punch Bowl, about rear of Queen's Hospital; of husbandry class; actual site of same now lost.	
Pakaka.....	Honolulu.—Heiau pookanaka; site not located.	
Kaheiki.....	Honolulu.—Heiau pookanaka, of traditional Menehune construction, site of same undiscovered.	
Hale-wa.....	Little Greenwich, Pauoa.—Heiau pookanaka, of round construction; about 150 feet diam. Destroyed before Lord George Paulet's time, 1843.	
Kahuoi.....	Pacific Heights.—Of husbandry class. Destroyed about 1850; foundations said to be yet traceable.	
Kawapopo.....	Upper Manoa, on premises formerly of Haalilio; a small heiau, said to have been torn down prior to 1850.	
Kukaoo.....	Manoa Valley.—A small heiau said to have been built by the Menehunes from whom it was wrested by Kualii and rebuilt about 1700. Its walls are yet standing.	
Hakika.....	Paliluahine, east side of valley.—A round heiau of not large size. Foundations now barely traceable.	
Hipawai.....	Makai of Church, Manoa.—Of large size and pookanaka class, partly destroyed many years ago, then used as a place of burial. Remaining walls subsequently torn down.	
Ahukini.....	Kaowa, Waialele.—A square heiau about 50 feet in size, destroyed some ten years ago and its stones used for fences.	
Kauiliula.....	Kuliouou, Waialele.—A similar sized heiau, little of which now remains.	
Hawea.....	Hawea, Maunalua.—About 75 feet square, now all gone; stones used to build walls with.	
.....	Niu, at foot of Kulepiamo (the middle ridge), of about same size as Hawea; used in later years as a sheep pen.	
Kawauoha.....	Kawauoha, Wailupe.—Some remains of it still there; was 75x75 feet in size, just above Puu Hua, at the foot of hill Hawaii loa.	
Umimua.....	Moanalua, on slope above late S. E. Damon's mountain house. Heiau pookanaka, about 100x70 feet. Some little distance below it is said to be its sacrificial stone. Its walls are yet to be seen, in ruins.	

Names	Location.	Remarks.
Puukapu.....	Kahauiki, mauka of military quarters.	Foundations only traceable. Reports as to class and size as also its kahuna are conflicting.
Kaumahaloa.....	Halawa, mauka of main road, about 70x80 feet in size, built before time of Kakuhihewa, 1560; destroyed during Kam. IV reign, about 1860.	
Waikahi.....	Halawa Valley, at Honolulu side of stream, on upper side of government road, from which it may be seen. About 80 feet square. Of pookanaka class; Manuuokao its kahuna.	
Keaiwa.....	Aiea, Ewa-uka. back near Koolau mountains.—Erected in time of Kakuhihewa; Keaiwa its priest.	
.....	Waikele, Ewa.—Site not identified. Heiau pookanaka, where the chief Hao was surprised during temple worship and slain with his priest and attendant chiefs by direction of the Moi of Oahu, about 1650.	
.....	Waimalu, Ewa.—Built by Naulu-a-Maihea in 12th century. Class and size unknown. Foundations were noticeable in 1880; site now lost.	
Ahuena.....	Waipio, Ewa.—Foundations still traceable. Hon. John Ii used to be the custodian of its idols.	
.....	On Kapolei hill, Ewa.—Size and class unknown. Its walls thrown down for fencing.	
Kuokala.....	Waianae, overlooking Kaena point.—Built by Kauaians on their settling Oahu. Now in ruins; class doubtful.	
Kahanaike.....	Makua, Waianae.—Of pookanaka class and platform character. Its ruins indicate a size of about 80 feet or more square.	
Kuopio.....	Makua, near church.—Size about 45x80 feet of husbandry class; little now in evidence.	
Kanaloa.....	Makua.—A small heiau now entirely destroyed, class unknown.	
Ukanipo.....	Makua, at Laiehu.—A medium sized heiau of pookanaka class, paved but not walled, now in ruins; used as a place of burial.	
Kaneaki.....	Makaha.—A walled heiau of two sections, 45x50 and 70x75 feet, the smaller division being six feet above the other; both walled and well paved, and the best preserved of all in the district.	
Kamaileunu.....	Puu o Kukaauau.—A medium sized heiau of platform character and pookanaka class, still in fair condition, to be seen from the road on the bluff above the pipe line of electric pumping station.	
Kahoalii.....	Puu Kahea.—Size 120x80 feet; entirely destroyed even to its foundations. Stones taken in 1870	

Names	Location.	Remarks.
		for fence building. This is said to have been the place of Kahahana's residence, and the scene of some of Kamapuaa's escapades.
Papaenaena.....	Honua-uka.—	Of pookanaka class, in Kukui grove at base of the palis. Foundations only remain. Its walls were torn down years ago by ranchmen.
Kikahi.....	Kawela.—	All destroyed, site now lost in cane field.
Punanaula.....	Kumaipo.—	A paved and walled heiau of luakini class, some 70 feet square, with three terraces, now in ruins.
Puupahechee.....	Puupahechee.—	A once walled heiau of two or three divisions, 70 feet in width, of luakini class, now in ruins; the outer portions entirely gone. Its slopes are now used as burial place for Japanese.
Kuilioloa.....	Kancilio, at light house point, near R. R. station.	In ruins; its outlines well defined, show a plan of three divisions of about 60x146 feet. Class unknown.
Poka-i.....	Kalai-a, at head of Waianae valley.—	Of large size, paved and walled; of pookanaka class. Niau its kahuna. Its broken walls and modern uses afford little to base an idea of its ancient form or plan of construction.
Kane.....	Kamaile.—	All destroyed; its site plowed over.
Malaihakoa.....	Waianae-waena.—	A small heiau; fragments of foundations only to be seen.
Kumaiawa.....	Koko-ke-kipo.—	All destroyed and leveled off; class and size doubtful.
Kalamaluna.....	Kuaiwa.—	Now in ruins in a field of cane.
Ilihune.....	Nanakuli.—	A small walled heiau of pookanaka class; used about 1860 by Frank Manini as a cattle pen, for which natives prophesied his poverty and death.
Kakioe.....	Puhawai.—	A small heiau of which nothing now remains but its sacred spring, and the sound of its drums and conchs on the nights of Kane.
Nioiula.....	Halona, Lualualei.—	A paved and walled heiau of pookanaka class, about 50 feet square, in two sections; recently destroyed.
Onehana.....	On	slope at rear of Waialua Agr. Co.'s mill: a partly walled and platform heiau about 60x100 feet in size; of pookanaka class.
Kalakiki.....	On	ridge north of Onehana, of pookanaka class; its walls covered in a tangle of hau and lan-tana.
Hekili.....	At	Palaa-uka, near the twin bridge, below the road; of luakini class and place of refuge; long since destroyed.
Lonoakeahu.....	Keehu.—	A heiau of small size destroyed years ago; site now planted to cane.

Names	Location.	Remarks.
Kapukapuakea.....	Palaa-kai.—A medium sized heiau of traditional Menehune construction of kauila wood, long since destroyed, said to have worked in connection with Lonoakeahu. Luuau its kahuna.	
Lapuu.....	Lauhulu.—A small heiau of unknown class; all destroyed.	
Kanehoalani.....	Kawailoa valley.—A small heiau of husbandry class; all destroyed.	
Iliilikea.....	At back of Kawailoa ranch house, of two divisions, 75x267 feet, its walls well defined, though in ruins. Class unknown.	
Puupea.....	Punanue, on crown of hill.—A medium sized heiau of several divisions; portions of paving and walls still in evidence. Class unknown.	
Kamani.....	Rear of Haleiwa Hotel.—No trace now remaining: was of luakini class, an unpaved heiau of large size with lime stone walls.	
Kupopolo.....	On Waialua side of Waimea point.—A large sized heiau of two divisions, 110x266 feet, still standing in fair condition. Kaopulupulu its kahuna.	
Puu o Mahuka.....	On Keanaloo slope, Pupukea lands, overlooking Waimea.—An immense heiau of two divisions, 281x127 and 186x168 feet, giving a total length of 467 feet, supposed to be the place of sacrifice of the murdered officers of the Daedalus in 1792, in Waimea valley. Of pookanaka class; Kaopulupulu its priest. Its outer walls are still standing, in fair condition, but its paving has been much disturbed.	
Kawaewae.....	Kaneohe.—Size and class doubtful; built by Olopana about the opening of the 12th century.	
Leleahina.....	Iolekaa, Heeia.—A large heiau enclosure of about two acres in area, now used as a cemetery. The heiau proper was about ¼ acre.	
Alala.....	Kailua.—Celebrated as the heiau where the ceremonies attending the birth of Kualii were performed, about 1640.	
Upo.....	Kailua.—A stone paved heiau with walls ten feet high; of about ¼ acre in area; reported to be still standing.	
Makini.....	Kailua.—Particulars not ascertained.	
Olohana.....	Waimanalo.—No particulars obtained.	
Pueo.....	Waimanalo.—No particulars obtained.	
.....	Mokapu.—A large heiau of husbandry class; Hina and Ku its deities.	

Any extension, further particulars or corrections to the foregoing, or aid in completing the lists of the other islands of the group for publication in our next issue, will be duly appreciated.

TALES FROM THE TEMPLES.

A preliminary paper in the study of the Heiaus of Hawaii, with plans of the principal ones of Kauai and Oahu.

BY THOS. G. THRUM.

INTRODUCTORY.

IN the self-imposed task of listing the heiaus (temples) of ancient Hawaii, which is begun in this issue, there has been such an appreciative and coöperative spirit met with in the work in various parts of the islands as not only to materially lighten its labors by the interest and encouragement shown, but to assure greater accuracy while hastening its compilation. To all such we would acknowledge our obligations.

The subject has been found so interwoven with the history, tradition and legends of the people that it has naturally led to enquiries and investigations, entailing far more research work than was anticipated; for it is proving an allurements to the thorough study of the different kinds or classes of heiaus, their plans and construction, as also the religious and other ceremonies thereat. This much is being realized, and expressions of regret have been freely made, that we are at least fifty years too late in entering upon these investigations for a complete knowledge of the matter, for there are no natives now living that have more than hear-say information on the subject, not a little of which proves conflicting if not contradictory. Nor are the descriptive accounts by the native authorities of Hawaiian antiquity, David Malo and S. M. Kamakau, as clear and explicit as they might have been, with the opportunities for detail which was theirs, or could have been commanded at the time in which they wrote, fifty and sixty years ago.

While these difficulties may delay the result of our study of the subject, there is nevertheless much material of deep interest attending the search and listing of the temples of these

islands that warrants a record thereof for reference and preservation. Much data of this character is embodied in the list for the islands of Oahu and Kauai, as may be seen, but not a few would be unjustly dealt with under such limitations.

Authorities seem to agree on at least four classes or grades of heiaus, viz.: Heiau me luakini, Heiau pookanaka, Heiau wai hau, and Heiau unu, as mentioned by Kamakau, though as to their order of supremacy or severity there is a difference of opinion. Malo and his translator names the Luakini as of the highest class. The historian Alexander says, "It was only at the Luakini heiaus that human sacrifices could be offered, and hence they were called heiau pookanaka," the terms thus apparently, being synonymous.

It is hoped that the attention now being given to this subject by an eminent scholar in our midst will make this matter clear. Possibly a clew is at hand that will warrant further search and enquiry for an explanation of those heiaus whose sacrificial stone is outside their walls and some distance away lest the temple be polluted with blood, or those dependant upon another heiau in the immediate neighborhood for their thorough working. Kamakau's term heiau me luakini implies it as a class having double functions, though his treatment of heiaus fails to show what this is. Malo treats the subject under one head, luakini, describing it as a war temple (heiau wai kaua), yet makes mentions of several others of milder character.

The list of heiaus given embrace these varieties of class, while it exceeds the authoritative number as to shapes, and gives the maximum and minimum as to size, probably, in all the islands of the group. And strange to say, in all the heiaus visited on the two islands of Oahu and Kauai, there are no two alike in plan. Some indicate such individuality even in their ruins as to make one hunger for their history.

In the majority of cases Hawaiian heiaus were either walled stone enclosures or open platform structures. They were mostly levelled and stone paved, many being of two to four

terraces. All heiaus were without roof covering except as to the several small houses erected within their precincts. In two instances, both of which were on the island of Oahu, at Waialua and at Honolulu, heiaus were described as having been of stick fence construction. And there were also sacred places of more than local fame to which pilgrimages were made and sacrificial offerings placed on outcropping rocks on a level plain, as that of Elekuna, at Mana, Kauai.

But all this belongs to subjects reserved for further study. They are merely mentioned to enable the general reader unacquainted with Hawaiian temples to better understand the list referred to, and the following notes in connection therewith.

HEIAUS OF OAHU.

Mention has been made that the subject is interwoven with the history, tradition and legends of the people. This was shown in the account of the heiau of Kupopolo, at Waialua, in the last Annual. History discovered it to us; tradition connected it with the famous seer Kaopulupulu, high priest of the heiau of Puu o Mahuka on the sloping table land of Pupukea, overlooking Waimea, and legend connects it with Kauai by its dedicatory and signal fires.

If size should give preference to notice then Puu o Mahuka is entitled to first mention, and like Kupopolo is in good condition for its age. It is a walled heiau of two divisions, its upper section being 127x281 feet and the lower 168x186 feet, giving a total length of 457 feet. Both sections have been paved with stones but at this time innumerable mounds and a maze of stone divisions predominate. The upper end has a double wall, the inner one having a ledge or base of two feet from which five terraces of uneven width extend, but averaging 15 feet, ranging about eight to twelve inches below each other, occupy this upper end. In the middle at this upper end, six feet from the wall, is a raised ground 24x32 feet in the front of which, but a little lower, is a smaller raised section 12x15 feet. On the two sides of this upper division a low ledge

runs the entire length of the walls. This is about two and a half feet from the floor and runs mostly eight feet wide on the west side, but on the east side it is ten feet. A similar ledge runs across the upper end wall of the lower division, and toward the middle of which are three curved formations, joining, each about 12x15 feet, similar to like tri-curved places noted on each side of the upper division ledge opposite each other about fifty feet from its lower end. These features will be best understood by reference to its plan. In only one other heiau as yet, has a similar ledge been found. The walls of Puu o Mahuka are light for the most part, say three feet in thickness, and stand from five to ten feet high according to slope of the ground.

A square enclosure 56x56 feet joins on the lower end of this heiau, which is said to be of more modern construction, to commemorate a kahuna's successful wager with an alii, but is no part of it, though the ruins of two small structures nearer the point is thought to have been connected with Puu o Mahuka in its working.

Two heiaus of local prominence graced the Waialua slopes of Kaala, viz.: Onehana, at the back of the Agricultural Co.'s mill, and Kalakiki toward Mokuleia, but higher up the ridge. The former seems to be a partly walled and part platform structure of good size, the full dimensions of which are lost in the jungle and soil accretions at the rear. Tradition places both of them in the fearsome class for the human sacrifices claimed for them, and the haunted character to this day experienced by night travelers in their vicinity, but more particular Onehana. Not only is the beating of drums and sound of the conch shell and gourd rattles heard in the nights of Kane in its precincts, but its influence extends to the shore and sea at its front, for torch-lights at times suddenly appear and dance about within its range, or vanish at one's approach. Figures, as of persons bathing, or fishing, are said to frequent its shore waters and mingle with persons so engaged but which vanish from sight if addressed. It is deemed unwise to

express an intent to go afishing abreast of Kalakiki unless in an indirect or figurative way, else Keanini, the shark-god deity of the heiau, which is a huge rock lying awash a few hundred feet from the shore, will cause the phosphorescent lights to so dog one's effort as to render the attempt futile. A still further superstition is, that a house built within the range from the temple to its deity must not have its doorway face the hills, else trouble, sickness and death to the household is sure to follow.

Among the various heiaus claimed for Waialua in ancient time, the site of a wooden structure known as Kapukapuakea, at Palaakai, is referred to; a medium sized temple built by the Menehunes of kauila wood, and which was connected in its workings with Lonoakeahu, at Keehu, some distance back of the village. Its kahuna, Luuau, is said to have foretold the wane of the alii Kahele's power, through the displeasure of the gods at his irreligious acts, and as a result he died degraded outside of his own district.

Hekili, at Palaa-uka, just below the road, is claimed to have been a heiau luakini and place of refuge. Nothing now remains of it save the beating of its drums and the sound of its flutes on the nights of Kane. This is likewise the evidence in our day of the temple of Kamani, of luakini class and large size, of lime stone walls that stood at the rear of Haleiwa Hotel: of Punakai, a medium sized heiau at Palaa, and of Lapuu at Lauhulu, whose sounds of devotion or revelry are said to be not confined to the trained or expectant Hawaiian ear, but that certain foreign residents have heard them likewise.

According to Waianae tradition eminence is claimed for the heiau of Kuokala, on the top of the mountain range overlooking Kaena point. This was not of large size, but it is said to have been built by Kauaians when they first settled this island. Both from its great age and its exposure to trespass by cattle, its walls are now fallen to a shapeless ruin.

The district of Waianae has little now to show of the many heiaus that once dotted its several valleys. The best remain-

ing is that of Kaneaki, in Makaha, some little distance above the Holt homestead. This was found to be an L shaped walled and paved structure of two divisions, the smaller section, 40x50 feet, standing six feet above a larger section measuring 70x75 feet. The walls of the upper portion were of man's height, within, but in the lower division its walls were but two feet from the stone-paved floor, the inner end of which a width of 15 feet was depressed nearly two feet. The east end of the upper section showed two steps of stone running straight across, in the middle of which was a small platform, or altar place, curving outward, and like that of Puu o Mahuka it did not join the main wall.

Of those in Waianae valley proper the ruins of two of some interest lie close to the R. R. station; one on Puupaheehee hill and the other at the light-house point. This latter heiau was evidently built according to the lay of the land, for it is in three sections of widening area as it stretches inland, its end and southern walls being built up in receding tiers so that the outer or point division which measures 55 feet at its base only gives 25 feet in width of surface by 48 feet in depth. The second division is 60x38 feet, and inland of it, on the south side of a well defined and level area are the house foundations measuring 25x60 feet.

That on Puupaheehee was also a walled structure of two or three divisions, the upper section being 70 feet across, by 57 feet in its width; the lower ones not so well defined. Its slopes in ancient time, covered with slippery grass strewn for the purpose, was the scene of sledding contests, hence its name. Of late its north and western slopes have been assigned as a burial place for Orientals.

An important temple in its day must have been that of Poka-i at the head of the Waianae valley, claimed to have been of platform character, though heavy walls in its precincts do not indicate modern erection. It is located in a net work of rocks and stone-paved terraces in which it is difficult to define the lines or shape of the heiau, which is said to have been one of severity under Niau, its kahuna.

Kumaiwa is credited as the heiau where the priest Kaopulupulu and his son Kahulupue took refuge and were driven therefrom by the soldiers of Kahahana when, as the priest and his son plunged into the sea through the murderous attack he exclaimed, "The land is the sea's," which Hawaiians long since acknowledged to have been a prophetic utterance now fulfilled, the land being occupied and governed from over the sea. Nothing is left of this heiau, even its foundations being levelled off. The same is to be said of Kahoalii, at Puukahea, Kahahana's place, which was a walled structure of about 80x120 feet in size, connected also in legend with the exploits of Kama-puaa. This heiau was destroyed by J. L. Richardson, and its stones used to enclose the manager's premises.

Coming now to those of Honolulu and its vicinity it is to be said that the patient delver finds a liberal reward, but of all the temples that have come down to us in name by historian none now remain, and but one is left of those famed in tradition. S. M. Kamakau left the names of several heiaus and the locations of others that have kept us busy identifying in this Nuuanu, Wakea first built heiaus for the gods, viz.: Kupuanuu, Kupualani, Pakaalana-lalo, and luna, in the valley of Waolani, on the ridge joining Kapalama overlooking the valley of Keanaakamano, and some overlooking Nuuanu. These heiaus are said to have been the places of the eepa people and the many wizards residing at Waolani."¹ Tradition credits the Heiau of Kawaluna at this place (better known as Rooke's valley), to the time of Kualii, about 1685, and its consecration by him by right as Moi of Oahu, following which, he routed the Kona forces that had ascended the valley to resist and prevent him.²

Mauoki³ is said to have been of traditional Menehune construction with stones brought one by one from Kawiwi, Wai-anae. It was a heiau of good size, walled on three sides and open to the west that stood at the foot of the slope dividing the Manoa and Palolo valleys, Kamoiliili. It was torn down

¹ Au Okoa, Oct. 14, 1869.

² Polynesian Race, Vol. II, p. 280.

³ Au Okoa, Mch. 10, 1869.

other parts of the islands. He says that "At Waolani,

by J. E. Bush, as Minister of the Interior, in 1883, and its stones used for street work.

Kamakau mentions also Pakaka and Kaheiki as heiaus of pookanaka class, but does not locate them. So far these have not been identified. His Kuapalaha site is now covered partly by the Cunha premises at the entrance of Kapiolani Park, and is said to have been worked in conjunction with Papaenaena that stood at the foot of Diamond Head, near the rear of Mr. T. Douglas' premises. This latter is referred to by early writers and listed by Kamakau as the "Leahi" heiau. Various authorities show this to have been a walled temple, nearly quadrangular, its open front approached by a series of terraces. It was paved throughout and foundation fragments now indicate it as having been 130x70 or 80 feet in size. Its walls were from six to eight feet high, eight feet thick at the base and four at the top. A visitor⁴ in 1852 noted "the remains of three altars located at the western extremity, closely resembling parallelograms." Papaenaena was destroyed by Kana'ina about 1856, and its stones taken for fence and road work at Waikiki.

Some confusion exists between this and the Apuakehau heiau, Helumoa, from the prominent sacrifices that took place at one or the other. The Apuakehau temple must have been of a more ancient period than Papaenaena, else this latter would not likely have had the preference of Kamehameha's sacrifices and services, nor that two of similar class or character so near each other should be at their zenith in royal favor and priestly power at the same time. The Apuakehau heiau was the place of sacrifice of Kauhi-a-Kama, the defeated Moi of Maui, in his raid on Oahu in the reign of Kaihikapu.⁵ It is not learned when its service ceased and Papaenaena's began,

⁴ Sand. Is. Notes, N. Y., 1854, p. 94.

⁵ Fornander says: "He landed at Waikiki and was met by the Oahu chiefs in battle, defeated and slain, and his body exposed at the heiau of Apuakehau, and great indignities were committed with his bones. The memory of this great outrage instigated his descendant Kahekili, to the fearful massacre of the Oahu chiefs after defeating Kahahana in battle at Niuhalewai (near the Insane Asylum) and conquering the island." Poly. Race, Vol. II, p. 208. Page 276 has this further mention:

We know not * * * if Kaihikapu-a-Kakuhihewa was personally present at Waikiki and shared in the battle and took part in the outrage committed on Kauhi-a-Kama's body at the Heiau of Apuakehau.

but the scene of activities center in the latter at the opening of the last century.

The following events are of record relating to Papaenaena:

"In 1804 when Kamehameha was on his way from Hawaii to invade Kauai he halted at Oahu with an army of eight thousand men. A serious epidemic broke out among them and in the course of a few days swept away more than two-thirds of them. During the plague the king repaired to the great heiau at Waikiki, to conciliate the god whom he supposed to be angry. The priests recommended a ten-day's tabu, the sacrifice of three human victims, 400 hogs, as many coconuts, and a like number of bunches of plantains. Three men who had been guilty of the enormous turpitude of eating coconuts with the old queen were accordingly seized and led to the heiau. But there being yet three days before the offerings could be duly presented, the eyes of the victims were scooped out, the bones of their arms and legs were broken, and they were then deposited in a house to await the coup de grace on the day of sacrifice. While these maimed and miserable creatures were in the height of their suffering, some persons, moved by curiosity, visited them in prison and found them neither raving nor desponding, but sullenly singing the national hula * * * as though they were insensible of the past, and indifferent to the future. When the slaughtering time arrived, one of them was placed under the legs of the idol, and the other two were laid with the hogs and fruit upon the altar frame. They were then beaten with clubs upon the shoulders till they died of the blows. This was told us by an eye witness of the murderous spectacle.⁶

Another sacrifice is recorded of Kamehameha I, at Leahi, where he had his nephew, Kanihonui, slain and placed on its altar for breaking tabu with Queen Kaahumanu. Kamakau gives a full account of this event,⁷ attributing the cause to the prevalence of drunkenness through the establishment of stills for rum making. Another native writer also treats of

⁶ Journ. of Tyerman & Bennett, Boston, 1832, Vol. II, pp. 48-49. This event is also referred to in *Fragments of Hawaiian History*, in the *Kuokoa*, Aug. 14, 1869.

⁷ *Kuokoa*, Aug. 3, 1867.

it in *Fragments of Hawaiian History*,⁸ and Kotzebue mentions it on the authority of Manini and says: "The king shed tears for the young man."⁹ This occurred about 1807.

Another heiau in this vicinity famed for a royal sacrifice on its altar was Kapua, at Kapahulu, about opposite Camp McKinley. A portion of its walls may yet be seen. Kaleikupule, Moi of Oahu, is said to have slain the chief Kaolohaka on his arrival from Hawaii on suspicion of being a spy, and to have sacrificed him at the heiau of Kapua, which act is alleged to have been the cause of Kamehameha's invasion of Oahu in his landing at Waialae. Outside of Kapua, to the east, is pointed out as the place where bodies from the Wai-kiki-kai heiaus were brought for burial.

Diligent effort has been made to identify the heiau that was destroyed by the natives because profaned by Dr. Scheffer's people, in 1815, and to locate the site of the "bamboo" structure hastily built to take its place, as mentioned by Kotzebue in the account of his visit here the following year, but, so far, without success. Nor has Chamisso's account of his experiences at the temple services he was permitted by the priests to participate in, as yet, been met with. Kotzebue's report is as follows:

"The sun was just setting when I passed the morai (temple) which Kalaimoku, accompanied by Chamisso, and several aliis was just entering. This heiau has been built in great haste, at some distance from Honolulu, because the inhabitants were obliged to destroy the old one, which had been polluted by the intrusion of Scheffer's people. The procession on entering observed the deepest silence, soon after that some came out again from the four sides, lifted up their hands to heaven, and seemed to invoke some one with loud cries; and, after repeating this several times withdrew again. Hereupon two fellows rushed out furiously running with all their speed in opposite directions in a circle round the morai.¹⁰ * * *

As this morai was built in great haste, after the destruction

⁸ Kuokoa, Aug. 14, 1869.

⁹ Kotzebue's *Voyage*, London, 1821, Vol. III, p. 250.

¹⁰ Kotzebue's *Voyages*, London, 1821, Part I, p. 99, and ¹¹ Part II, p. 192.

of the old one, it could give me no correct idea of their sanctuary; I only found here a piece of ground of about fifty square fathoms, paled in with bamboo; in the middle of this place six small houses, standing close by each other, formed a semi-circle; each of these chapels was surrounded by a bamboo enclosure over which the colossal heads of the gods appeared, like sentinels."¹¹

It seems strange that nowhere else is mention found of these important events in the history of Honolulu's heiaus.

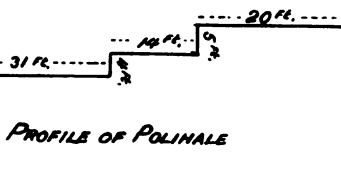
Search for the Pakaka and Kaheiki heiaus mentioned by Kamakau, and classed as pookanaka, has not given satisfactory results, though in a native description of early Honolulu, following the Okuu pestilence of 1804, there was located at Pakaka (known later as Robinson's point), heiaus of a medical class under one Papa, termed "na heiau kahuna lapaaui." Kamakau having classed his of this name or location as a sacrificial heiau relieves it from confusion with this medical kahuna school.

Of the Pauoa and Manoa heiaus little information is gathered, and that of a conflicting nature. The only one still in evidence is the small one of Kukao, of traditional Menehune construction, in Manoa valley, said to have been wrested from them in battle and rebuilt by Kualii.

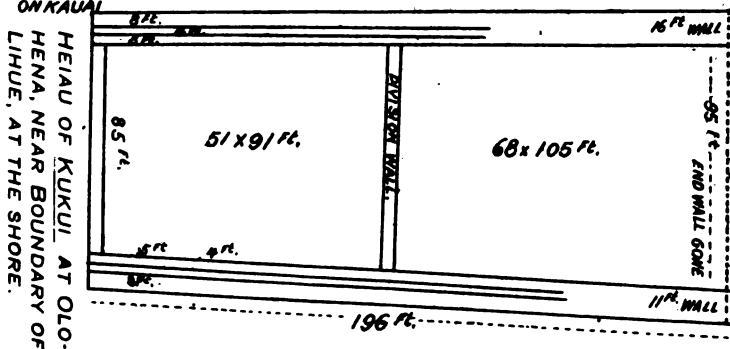
Information relative to the Koolau and Ewa districts, as yet, are very meager. Of historic note is the heiau of Alala at Kailua, where the ceremonies attending the birth of Kualii, about 1640, were performed at this temple, and that of the heiau at Waikale, Ewa, (name not given), where the chief Hao was surprised during temple worship and slain, with his priest and attendant chiefs, by direction of his brother, the Moi of Oahu, about 1650.

HEIAUS OF KAUAI.

A tour of the island of Kauai in the study of this subject resulted in the very full list, as may be seen; thanks to the kind co-operation of Messrs. J. K. Farley, W. H. Rice, Sr., Francis Gay, and others, and to Mr. A. F. Knudsen we are also indebted largely



DOUBLE SIDE WALLS SHOW A 4' PAVED ALLEY-WAY LEADING TO THE LARGER DIVISION. THE STONES OF THIS STRUCTURE WERE THE LARGEST OF ANY HEIAU ON KAUAI



for traditional and other facts connected with the temples of his Kona district.

Respecting Polihali, or Polihale, a large five-terraced platform heiau at the foot of a cliff of same name, beyond Mana, Kalapii, a native of Kaunalewa told a lot of things about the local traditions from his father, who was a very old man when he died. In 1853 he was said to be the oldest man in Waimea district and claimed to have been a small boy at the time of Cook's visit, which he remembered. He had been circumcised and wore a malo at the time of the battle at Koloa (Mahaulepu) beach, Kauai. On that occasion he was present for the first time at a human sacrifice. Twelve warriors from Hawaii, captured with many others in the battle, were killed in honor of the war god on the open platform of the Polihali heiau. He was then about 16 years of age.

In 1885 Kalapii went with me to the heiau of Kaunalewa. It is situate about 250 feet mauka of the government road on the left (south) side of Kaunalewa gulch and opposite the famous coconut grove. This heiau is on a large mass of lava rock, in two tiers, one about six feet above the other. Platforms paved in stone; both about 20x30 feet, facing due west. This is the heiau where the rite of circumcision was performed.

Kalapii maintained that the heiau of Elekuna at Nohili was a ledge of sandstone in situ. It was never built up at all. Here Kalakaua and his parties sacrificed several times. Natives aver that they often hear the hula drums and music there at night, caused by supernatural or unseen agencies.

Besides these there is a large heiau at Haeleele, about a mile from Polihali, in the mouth of Lapa gulch. There are three platforms, one above the other. The middle one is about 30x50 feet, the other two irregular in shape and smaller.

Kuapa, near Waiawa, has a small heiau about 18x28 feet, but it, like the Waiawa heiau, was but a village shrine. The Waiawa heiau is situated about 200 feet up the pali, on a ledge, with a very commanding outlook. From its 12x20 platform Hauola

can be seen three-fourths of a mile away. The heiau of Hauola was built, according to traditions gathered by Mr. Valdemar Knudsen, to commemorate the recognition of Ola as a Prince of the Royal House.

Born and raised in obscurity and being a splendid specimen of a stately race, he, at his majority, walked boldly into the sacred precincts of the temple. Being unknown he was seized, bound, and condemned to death. His mother, following with the insignia of his rank and proof of his birth, soon obtained his release and established his position as one fit to rule. Later, on becoming king of the whole island of Kauai he made a great reputation as a wise and farseeing ruler. Kapuahi-a-Ola, where he built his war canoes; Kikiaola, the great irrigation ditch of the Waiamea valley; Kalo-a-Ola, in the high cliffs of Milolii; Kiipapa-a-Ola, the corduroy road over the great swamp of Alakai, are but a few names commemorating his magnificent reign.

When fully established in his authority, King Ola built the heiau of Hauola to commemorate his rescue and identification as of royal lineage. This story is parallel to that of King Umi of Hawaii.

The heiau is built in the Hoea gulch with a vast amphitheater of cliffs back of it. This amphitheater makes a quick, clear and loud echo, and when the hordes of common people filled the surrounding hill sides at least fifty thousand strong, and shouted in unison, it is said that the roar was heard in Hanalei, clear across the island. From the area marked out as being the area covered by the standing crowd of the congregation the number of those present might easily reach one hundred and fifty thousand.

An interesting adjunct to the heiau of Hauola is the sacred hill of Kanaloa. This is a sandstone knoll rising high out of the sand plain, and from this safe distance of a mile all those who from some reason or another were afraid to mix unguardedly in a crowd, could watch unmolested the services of the temple. Being dedicated to Kanaloa—the most sacred name—this hill was a sort

of temporary place of refuge and is approached with reverence by the natives to this day.

Above the heiau of Hauola rises the abrupt and precipitous hill of the same name. This is a plateau of 20 acres, fully 800 feet high, and was fitted out as a most perfect puu-kaua, or fort. This was last used on the occasion of Kamehameha's threatened invasion in 1804.

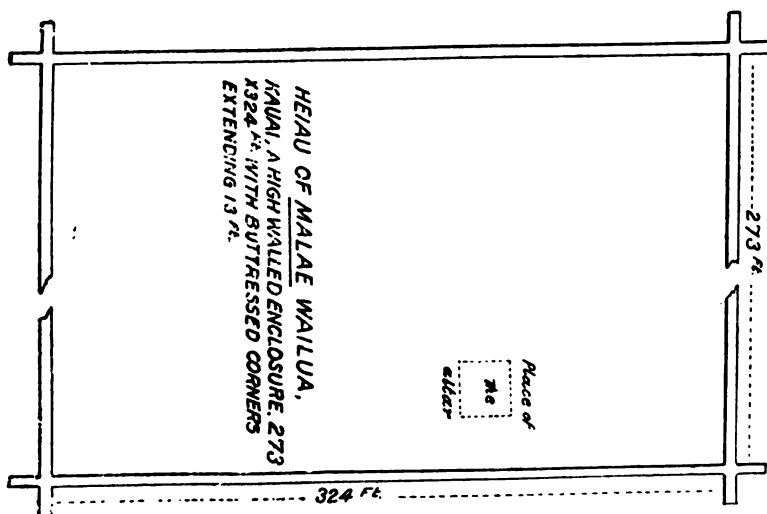
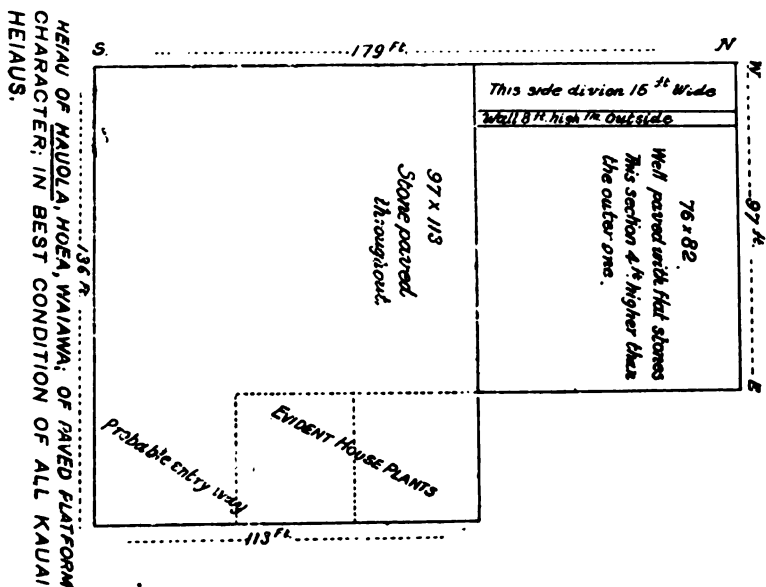
There is a heiau on the ridge of Paehu, in Pokii, near the watershed and boundary of Waimea. This is about five miles from the sea and a good evidence of the density of the population, even in the dry uplands. The heiau is a simple platform on the top of a hill. It is built up on all sides with stone and the hill then flattened off to fill up the space inside the stone work, the whole space being then paved. The platform is a perfect parallelogram 40x60 feet; elevation above the sea about 1700 feet.

A similar heiau exists at Niu, in Kaunalewa, about $4\frac{1}{2}$ miles from the coast and at an altitude of 1200 feet. This village had about half an acre of taro land besides the dry crops to depend on. Evidently this heiau, like that of Paehu, was but a village shrine and was supported by a scattered mountaineer population.

At the foot of the crater cone of Puukapele is a series of three platforms. On account of the conformation of the mountain these are irregular in shape. The lower platform is of earth. It seems to have had no regular sides or edges, the ground being simply leveled off to give a place to stand on. The longest axis is about 60 feet. The longest at right angle to this is about 50 feet. Rising four feet above this is a walled enclosure 12x30, but not exactly rectangular. The stone walls are about three feet high, and badly dilapidated. The third platform is a small niche in the mountain side about 8x10, evidently only a house floor. No special significance seems to be attached to this so-called heiau.

Ka-unu-aiea is a small shrine in the dense koa forest of Milolii. It was only an "unu," or shrine, for the shifting population of the forest belt. There is no platform left to indicate its existence.

Kaawako is a small rectangular structure about five by seven feet and two feet high, made of smooth lava slabs, on the summit of Waialeale, between two knolls, in the open country near the



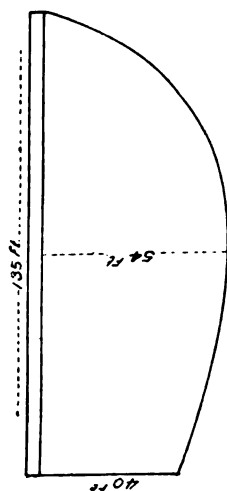
pond. This is very sacred; to this day you must throw on it the most valuable thing you have with you—money, food, tools, or whatnot,—to propitiate the gods of the mist lest they envelope you and you lose your way in that tangle of woods and gulches and level plateaus of the interior of Kauai.

The largest and most famous heiau of Kauai in its time is said to have been that of Kuhiau, at Nawiliwili; described as a large walled and paved structure which covered an area of about four acres. It had a companion heiau called Paukini, on the rock of that name now separate from but formerly connected with the shore, and where the kahunas of both temples resided. Nothing now remains of either.

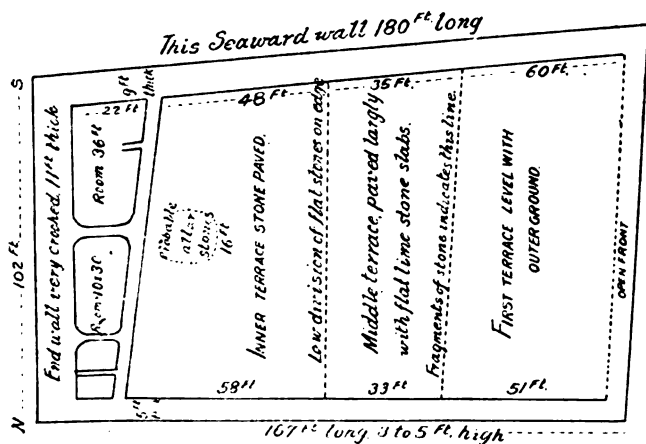
Next in size, and the largest now of Kauai's list, is the heiau of Malae, in central Wailua, measuring 273x324 feet, with buttressed corners extending 13 feet, the only one of the kind known on the islands. Its high and substantial walls are in good condition, but its inner divisions and temple features were torn down by Deborah Kapule, the deserted Queen of Kaumualii, somewhere about 1830. A ledge about two feet high and some six feet wide is said to have extended all around its four walls (similar to the feature noted in Oahu's largest temple), described as the seating place of the people during ceremonies. The companion heiau of Malae was Poliahu, situate some little distance from it, further inland, but in plain sight of each other. It is also a walled heiau; of medium size, and in fair condition.

The shore temples of the Lihue district present features of peculiar interest in their construction. Hikinaakala is a long narrow heiau of three divisions, the inner section being in fair condition, its end wall and corners being 11 feet thick, and of heavy stones. Much of its paving is still intact. A number of graves mark the middle and outer sections, said to be the remains of an entire family in consequence of their desecrating the temple by living and cultivating within its walls. The total length is 395 feet by 80 feet in width on front, its widest part.

Kukui, situate at Olohena, was a walled and paved heiau of two divisions, 196x85 feet in size, now in a state of ruins, much



HEIAU OF PUALU, KADAHILL, HANAPEPE VALLEY.
A PAVED PLATFORM HEIAU WITH WALL AT THE BACK 4^{ft} HIGH
AT THE BASE OF A HILL, ITS FRONT, ABOUT 6^{ft} HIGH IS
BADLY FALLEN AWAY IN PLACES AND THE FALLING OF STONES
HAS GREATLY DISTURBED CONDITION.



HEIAU OF HANEIOLOUMA AT POIPU,
KOLOA, KAUAI.

to be regretted, for the distinctive features yet to be seen but insufficient to be well understood. The stones of this temple are the largest and heaviest seen in any like structure on the island, many being huge boulders sufficient for the height and thickness of its walls. The further end wall is entirely gone, but the side walls are 16 feet thick on the sea side and 11 feet on the upper side. The outer division walls are double in construction, with a four foot paved passage way between; the outside wall being eight feet thick and the inner wall five. These passage ways ran distinctly to the middle division wall of the heiau, and led to its inner section, but just how far was hard to determine, as they were lost by the tumbled condition of the walls from this point. The upper end wall of Puu-o-Mahuka heiau seems to possess this double feature also.

The heiau of Kukui is famed traditionally as the place where Kawelo's body after being slain in battle at Wahiawa was brought and placed on the lele (altar) for decomposition, which did not set in, and on nearly the tenth anahulu (ten days periods) his body was struck by lightning when he came to life.

Near the Poipu beach, at Koloa, are two walled heiaus but a short distance apart. The larger one named Kaneiolouma, contains features all its own in the stone-enclosed unconnected rooms which extend across its eastern end. The front of this heiau (to the west) is entirely open and is somewhat wider than the rear, which measures 102 feet and is full 11 feet thick. The seaward wall, 9 feet thick, is double that of the mauka wall and in height ranges from four to six feet. It is of three divisions, slightly terraced, the middle and inner sections being still largely paved with slabs of a lime stone belonging to the neighborhood.

No information or explanation could be obtained relative to the unconnected stone rooms or enclosures, though a walled section toward the N. W. corner—omitted from the plan—was said to have been built up for more modern use.

The medium sized heiau on Niukapukapu hill, at Lawai-kai, is said to have been built by Kulaahiki, an alii, who lived there. A coconut palm was planted near it and watered by him and his

priests with calabashes of water brought from the stream in the valley.

Futile was all effort made to identify and locate the site of the first described heiau of these islands, situated in the Waimea valley, Kauai, and pictured in Cook's Voyage in a drawing by Webber, and which is the only one that has been published illustrating the interior of Hawaiian heiaus from that time to the present. Neither name, or exact location is given, but it is described as "an oblong space of considerable extent, surrounded by a wall of stone about four feet high, enclosed space loosely paved with smaller stones," etc.¹²

In continuing this series next issue, the notes will embrace a number of the famed historic temples of the island of Hawaii.

LAND CUSTOMS OF EARLY SETTLERS IN HAWAII.

Thrum St. G

As Shown in the Foreign Testimony Records of the Commissioners to Quiet Land Titles, 1846.

MUCH additional early information relative to the block now known as the Executive grounds of this city, that was dealt with in John M. Kapena's address in the Annual for 1906, pp. 74-80, is found in the claims of Captain Sumner, together with other interesting reminiscences in his service in the employment of the government and of the chiefs in those early days with corroborative testimony by others confirming important points set forth in Captain Alexr. Adams' Log, also in last Annual, pp. 66-74, and statements in earlier numbers, all of which give it material historic value.—Ed.

SERVICES OF WILLIAM SUMNER, SENR.

I arrived at these islands in 1807. In the year 1813 I commanded a small schooner belonging to Kalaimoku which sailed between the islands. In 1816 I commanded the ship Albatross and made a number of voyages from island to island. In 1817, was chief mate of the brig Forrester, bound for China; Alexr.

Adams was commander. Before proceeding on the voyage we were ordered by Kamehameha I to proceed to Kauai and haul down the Russian colors, which were then flying there, and to hoist those of Kamehameha in their place; this was accordingly done.

We sailed for China on the 12th of March and returned October 16th following. From this date to the year 1821 I was constantly employed in commanding government vessels from one island to the other. In July of this year (1821), I took charge of the brig *Thaddeus* and sailed for Kamschatka with a load of salt and returned on October 27th following. Had not Providence protected us during the voyage, the whole of us must have perished in consequence of the severe weather experienced, and the unseaworthy state of the brig.

From 1821 to 1824 was again constantly employed in the coasting service in command of government vessels. March 2nd of latter year, by order of Mr. Pitt (Kalaimoku), sanctioned by the king, I took charge of the brig *Ainoa* and proceeded on a sailing voyage. After much labor, danger, and great privation, being but badly provided with provisions—in fact, I may say not provided at all,—I returned October 14th of same year, with 5845 fur skins, a quantity of elephant oil, besides a great quantity of fish. Had I been supplied with even a moderate share of the necessities of life I might have got a much better cargo.

In 1826, took charge of the *Kamalolani*, on another sealing voyage. After much difficulty and privations, being similarly situated with regard to provisions as on first voyage, I procured 3160 fur seal skins. The crew now began to show signs of dissatisfaction and I was at last obliged, by their continual complaints of hunger, to put in at Port Dago, California, and buy some corn, the only thing we could get.

As I was about to sail, the Spaniards, thinking they had someone in their power from whom they might glean a little harvest, without any notice fired upon us, not because we violated any of their laws, but because they wanted part of my skins. I told them they should not take any, for I was not afraid of them though much smaller in number to them. They then informed me that

they would not acknowledge my colors, and if I attempted to sail they would blow us out of the water. I then went on shore to the governor, but was very glad to get on board again. Thinking it probable they might endeavor to sink the brig I was not sorry to see her run on shore, and when they made their threat so to do unless I complied with their demands I replied they could not do that as she was sunk as far as she could go. Finding they could make nothing of me they allowed me to depart and I arrived at Oahu, January 24th, 1827. From this time till '29 I was in the government coasting service, in command.

On May 21st, 1829, Governor Boki gave me charge of the brig *Neo* (Niu), bound for Tahiti, to recover a cargo of goods sent to that place by a chief named Kamanohu, which cargo, at that time, was supposed to be lost. I accordingly proceeded on the voyage and on arrival at Tahiti found the cargo above alluded to had been sold, and that the proceeds were likely soon to be squandered away by Kamanohu. I remonstrated with him and after much persuasion and exertion to buy a full cargo of coconut oil, a quantity of wood for furniture, etc., with the money he then had, but which very shortly would have been expended by him in drunkenness and profligacy. This oil I had to bring in bamboos, having neither cooper nor casks on board. I arrived back here September 23rd, 1829. From this time till 1831 I was again in inter-island coasting. December 25th, I took charge of the brig *Waverly* by order of Kamanu (Kaahumanu), and sailed for California, the particulars of which your honorable Board I have no doubt is well acquainted with. Returned again in May, 1832.

For these services the lands I have submitted for approval to your honorable Board were given to me. I received no wages while thus employed and I hope your honorable Board will do me the justice to see that my exertions have been fairly remunerated.

SUMNER'S CLAIMS.

I will now refer to the lands. In August or September, 1819, I first went on the land on the plains and built my houses. Boki was governor at that time. He sent one of the chiefs called Kalaona to build a large house for me. Residents at that time

could go and build where they liked without fear of molestation. When I built my house above alluded to there was not a single house near the spot with the exception of Mr. G. Beckley's, nor any other person for three or more years. About this time King Kamehameha II and the chiefs came from Maui. At the request of Boki I went in the brig *Thaddeus* and brought down the people. The king and chiefs frequently used to call and see me on the premises which I at present occupy. One day, I do not exactly recollect the time, Mr. Pitt called upon me and after some conversation fell asleep in the house which I have recently pulled down. When he awoke he said to me: "William, I want you to pull in your fence about eight or ten fathoms." The fence alluded to was the one between my present house and the palace, then leading from the residence of Dr. Judd to that of Hon. Judge Andrews. I consented to this and when done, he said to me: "William, this is my yard and that is yours," alluding to the land upon which my present house is built, and the piece of ground now in dispute. He then said to me: "Build a fence across in a straight line to the pathway above the well—alluding to the road (Richards street) which at present runs down to the sea. Okea and myself dug the well. There was no mud walls in those days. As soon as I found water in the well people began to come and build on the plains. My fence formerly commenced in Dr. Judd's yard, but at request of Kinau I drew it in; do not remember how many fathoms. When I did so, I carried it across the roadway running to the sea, as far as Kittera's house, which is at present situated in the yard in which is a large tamarind tree. When they began making the roads, Governor Kekuanaoa applied to me for permission to pull in my fences, which I agreed to. Mr. Pitt sent for me one day (I cannot now remember when it was), and said to me: "William, I want you to go with me to Pearl River to bring up sticks for our fences, and as the vessel I am going in is a square rigged one, I wish you to take command of her." I accordingly did so; took her into Pearl River and brought her safely out again. Shortly after Mr. Pitt applied to me for a pathway through my enclosure towards his house. This pathway is the one which at present leads to the young chief's

school. He said he wished to make this pathway to oblige Lord Byron and his doctor. I consented to this also.

I fenced in the whole of the land belonging to me. My fence commenced somewhere in the yard at present occupied by Dr. Judd and ran up nearly to the residence of Judge Andrews. I then ran the fence across the land to the road now leading to the sea, and from thence to the one in Dr. Judd's yard. My present yard, the one opposite belonging to me and the piece in dispute were at that time all in one. They were given me by Mr. Pitt by His Majesty's orders for my 30 years' services to the government. I built the house on the land in dispute for my former wife. I gave her in charge of the land which she does not deny. I believe she lived there about 16 years. When her husband died, Keliiahonui came several times and requested her to pull down her house. She said to him: "Why do you want me to pull down the house, William sent me here to take care of the land as it belongs to him?" At last he got very angry, and he made her pull it down, and she had to get her friends to assist her. I was away at the time this took place, but I shortly after returned, when I found the materials of the house lying in the yard and my wife crying over them. I immediately applied to Kinau to state to her these facts and to protest against them. On my arrival at Kinau's resident I met with Kekuanaoa and I told him the cause of my visit and the purport of my complaint. He said to me, "Kinau is now very sick and you cannot well see her, but I will tell her what you have told me." I think this took place in 1836.

When the chief Kinana commenced building the stone house now erected on the land I went to him and told him he must not build there, as it was my land. He said to me: "Well, William, I know this is your land and when I get it finished you can buy it of me." He did very little to it after that and death shortly after put an end to his existence. The house then remained in that unfinished state for some considerable time, and when it was begun again Keliiahonui was told that it was wrong to touch that house, as the land belonged to Mr. Summer, and the probability was there would be a row about it.

I hope your honorable Board will take these circumstances into

consideration. I omitted mentioning that I received \$100 for the voyage in the brig Niu, \$25 a month for the voyage in the Waverly, and \$100 as a present for the voyage in the brig Thaddeus. This was a gift from his present Majesty. This is all the money I ever received for my 30 years' services.

PETER RICHMOND'S DEPOSITION.

I arrived at these islands about 22 years ago. I came from Tunton, Mass. Have been in Honolulu about 18 years at work as a carpenter. In old times there used to be a high stick fence running along the ground where Kekauonohi's stone house is built. It commenced at Dr. Judd's inland fence, and running inland of the stone house near the line of the street the fence ran up beyond the well which is on the premises of Kekauonohi and comprised the houses about as far up as where the native straw house stands. I do not know how far the back fence extended; cannot say if there was a cross fence or not. Some of Mr. Sumner's people lived in the large native house there. I do not recollect when the lane was opened; there used to be a path there. Cannot say whether or not the straw houses were built by Mr. Sumner. The place where the young chief's school is was owned by Kanaina. About 1837 or '38 the main (Richards) street was opened which intersect at right angles the street (Beretania) where General Miller resides, and the street (King) which passes in front of the palace.

About the time the street was opened, Mr. Sumner built a mud wall from the street above described running easterly. The same stands there at the present time, which is the mauka wall. At time of its building the straw house was torn down. I believe the path has been a thoroughfare during the past ten years. I cannot say whether it was ever laid out for a street or road, or by common consent that people passed over it. I knew Mr. Sumner a short time after my arrival here, and have always understood that the land where he lived belonged to him; not only that, but all that was included where the stick fence ran. Mr. Palmer was one who told me so. I have heard that Mr. Pitt applied to Mr. Sumner for permission to make a pathway which now leads up to the young chief's place.

First two years after my arrival I lived at the fort ; afterwards with Jack Crowne. Have no connection with the parties ; never lived with Captain Sumner. Could not point out to surveyor where fence ran within 20 or 30 feet, but am sure it ran as far as stone house. Could not say how deep land was from E. to W., but it was wider than Mr. Sumner's present premises. Do not know of any natives living on the ground at that time, nor who built the stick fence. Kinana commenced building the stone house upon the ground about three years ago. Do not know if Sumner opposed it. Do not know who planted the sugar cane on the land.

KAUILA'S DEPOSITION.

I have been wife to Mr. Sumner until about the time of the arrival of letters (1820). Do not know at what time Mr. Sumner took possession of his present premises ; it was long before Kalaimoku built his great yard. The place of Mr. Sumner was not given him by any person ; it was an unoccupied place and he went of his own accord and built there, with the knowledge of the chiefs. He built a fence around his premises, it commenced near Dr. Judd's premises and ran up along the street. When Kalaimoku was sick he asked of Mr. Sumner a pathway for him to go out through his yard and he gave his consent to have the two parts separated by the path. At that period we were living on the mauka side of the pathway ; our two families. Mr. Sumner built the house where we with my husband lived. My husband and Mr. Sumner dug the well. I left the place at the time Lot was born, in 1831 or 2, when Keliiahonui sent us away. The wall was built before I left. Do not know on what ground Keliiahonui sent me away. I considered him as my chief. I was the servant of his chamberlain. * * * I was at Maui when Nahienaena died, in 1836, and when I came back, found all the house materials in Mr. Sumner's yard. * * *

DEPOSITION OF UILANI.

I am living in house of Mr. Grimes. Have been acquainted with Mr. Sumner from my childhood. When I first knew him he was living down here in the village. At that time the place

where he is now living was entirely vacant. He went perhaps of his own accord and selected the place and fenced it with sticks. Mauka boundaries was just back of a well; western side where road now runs. Sea boundary was somewhere within Dr. Judd's yard, but was gradually removed at request of Kinau till it reached the place where it now is. On eastern side it extended into what was subsequently the yard of Kalaimoku; he requested permission to extend his premises into Mr. Sumner's yard, and obtained it. The space thus gained was considerable. There was no interior division of the land at that time; no fence at time Kalaimoku was living. (Rest of testimony much the same as others).

ROBERT BOYD'S DEPOSITION.

Have lived on the Sandwich Islands 25 years; am an Englishman by birth. Knew Mr. Sumner about three weeks after my arrival, living where he now does. The premises are bounded on S. E. by palace yard, on N. E. by a narrow lane, on N. W. by a broad street, on S. W. by premises of Dr. Judd. Those were not the former boundaries. There were houses on the lot when I went to live with him in 1822. No house now standing that was then. I was absent when the house he now lives in was built, which was previous to 1837. There was a thatch house in which he then lived, near site of present house, when I first knew him. There was a plastered mud house on right hand side of entrance to his then residence which he used as a store house. That entrance was where his gate now is. A stick fence was on the street side as early as 1822. That fence commenced at premises of Dr. Judd and ran inland about N. E. along the street and ended a little further than the alley, about 40 or 50 feet. * * * Mr. Sumner had no building beyond the lane, except the well that I know of. The land on N. E. side beyond the alley where the well is was open to anyone to build on at that time. Mr. S. could not have opposed anyone at that time building on that vacant space to the N. E. if the chief had given his consent to anyone building there, and even Mr. S. would have required the aid of a chief to sustain him in building there. The present lane was then a pathway. * * * About the well there was a small

thatch house, inland of it, in which lived a man named Powell. In 1822 the whole block was an entire plain including the palace, Dr. Judd's, Mr. Sumner's present residence, and the land in dispute. In 1837 there were several persons living on the block in different parts:—the governor, Kinau, Mr. Sumner and some natives. Cannot say that in 1822 anyone could take possession of land as they chose, but he must have the sanction of a chief. If a foreigner, he would make friends with some chief and ask him to build a house for him, giving him so much money. The chief might ask the person so requesting where he would have it; by your pointing out the place he knows whether he can build there better than the one asking. At that early day it was the usage to ask for as much of the land as the applicant saw fit and could pay for; the more he could pay for the better the chief would be pleased. There were no purchasers at that time (1822), in foreign understanding. The money was given to enable the chief to build the house for the applicant. In fact Boki was very angry with me on having understood that I drew up a paper for selling land by Mr. Kilday to some one else. It was understood by me from Boki, that when he sold land, he only sold the privilege of the stand and improvements. I think natives did not ever practice, at that day, selling the right of occupation and improvements. Do not think, until the passage of present laws creating this Board, the natives ever enjoyed that right at all. (Further and confirmatory testimony along same lines by others).

JOHN II'S DEPOSITION.

I was acquainted with the premises of Mr. Sumner previous to 1820. Cannot positively testify, but think he took possession in 1816 or '17, the time of the Russians, as I was at that time on Hawaii. About 1823 Kalaimoku built a large fence alongside of it. The fence extended clear from Chapel (King) street, toward the mountain to Back (Beretania) street in which General Miller and Judge Andrews live. I know about 1825 a fence ran from Dr. Judd's premises to the path which led into Kalaimoku's yard. I know also there was another fence which extended along same line till it passed the house occupied by Kauwila and her

husband, Hokio, nearly to Back street, then turning at right angles and running to the fence of Kalaimoku before mentioned, including the ground now occupied by General Miller and Judge Andrews. It is not clear to me if there was a fence on the mountain side, diverging from the stick fence already described, but in my opinion the yard extended clear up to Back street, including houses occupied by the people of Keoua. Know also that the lane upon which Mr. Sumner's premises now abut was then a traveled footpath, and was fenced in on both sides by a short stick fence, the same width as at present. Don't know who built the fences around this yard, but know Mr. Sumner was living then where he is now.

COMPARATIVE MYTHOLOGY OF THE PACIFIC.

BY REV. W. D. WESTERVELT.



WHEN Captain Cook made his discoveries in the Pacific Ocean during years 1776-1779 he was very much interested in marking the physical resemblance of the widely separated peoples later known as the Polynesians. He also noted in many places a significant likeness in language and thus was led to the conclusion that there was a close relationship between the various groups of islands of the Pacific.

During the past forty years the research of scholars residing in the different Polynesian groups, has brought to light a very remarkable amount of folk-lore, unique in subject matter. This is rapidly becoming available for comparative study, and is exceedingly interesting on account of its dissimilarity to the folk-lore of Europe.

There are gods and demigods, but the thunder and lightning which surround the thrones of Jupiter and Thor and the mighty battles of the Valkyrie are not predominant. Thunder storms are of rare occurrence in Polynesia and therefore the gods and heroes are gifted with powers over other forms of Nature's phenomena.

The volcano and earthquake, the sea and sky and their wonders; the mighty deeds of strong men and the magic of marvelous spirit power, all combine to give a peculiar field for a legendary growth utterly unlike European mythology. It is safe to say that scarcely any of the legends of Europe, either of Scandinavian or Latin origin, have their counterpart in the Pacific Ocean.

Mercury the mischievous, and Hercules the strong, are rivalled by Maui, the demi-god of all the chief groups of islands of Polynesia. Maui is mischievous and tricky. He does more wonderful deeds than Hercules. He even outclasses Atlas, for Atlas lifts the world whereas Maui raises the heavens from the earth. The comparison of the Maui stories alone with the European myths would be an interesting study.

The Polynesian legends are numerous. In many cases after even hundreds of years of non-intercourse between the different islands they remain almost exactly identical in detail as well as in general subject matter.

Three groups of islands forming a triangle in the great distances of the Pacific Ocean may be taken as an example of the close relationship of Polynesian language and literature. The Hawaiian Islands belong to the northern part of the Pacific. New Zealand is practically 3,800 miles west of south from Hawaii, and Tahiti or the Society Islands are about 2,400 miles east of south from Hawaii and lies 2,200 miles northeast of New Zealand. Such ocean distances preclude the idea of easy canoe voyages from one group to the other. The Fiji, Samoa and Tonga groups are indeed stopping places on the journey, but Fiji is over a thousand miles from New Zealand, and Samoa is over two thousand miles from Hawaii. Madagascar, off the coast of Africa, is somewhat similar in language. A collection of its legends might prove its close literary connection with the early Polynesians. It is to be regretted that the value of legends has been so thoroughly underestimated. David Malo, a well informed Hawaiian writer of about sixty years ago, brushed even the demigod Maui out of all historic by-ways with the concise statement "the stories about him are false, therefore I will not repeat them." And yet Maui was evidently a great explorer and

discoverer of new places. In Tahiti, New Zealand and Hawaii, he is credited with having fished up "the islands from the bottom of the deep seas," a poetical description of discovery, the islands discovered first appearing small and growing larger and larger until drawn to the boat. In Tahiti the fishhook was thrown up into the sky and became the curved tail of the constellation Scorpio. In New Zealand the hook became a part of the reef in one of the bays. In Hawaii the hook was supposed to have been kept by a royal family.

The story of finding islands by drawing them to a boat as a fish is told in Tonga, Manahiki, Samoa, and New Hebrides, as well as New Zealand and Hawaii.

The legend of the sky and earth united and then forcibly separated by a mighty hero, usually Maui, is told in New Zealand, Hawaii, Samoa, De Peyster's, Hudson's, St. Augustine's, Tracey, Tamana, Onoatua, Peru, Niu, Fiji and Tahiti Islands. At first the heavens were so close that the leaves of all the plants were flattened and men crawled like worms. In Samoa and Hawaii Maui lifted the sky to pay for a drink of water. In the Niu Islands a sea-serpent lifted the sky for the gods until his body broke and became islands and his blood-drops spattered on the sky became stars. The sea-serpent is closely connected with the Maui stories in different island groups. Sometimes the legends say that Maui and his friends clipped off the rough places of the sky with stone axes, polishing it finally with finer tools.

A very curious legend concerning the movements of the sun and a change from long nights and short days to an even duration of light and darkness, would imply that some of the ancestors of the Polynesians resided for a time in the far north, or south. The legend of Maui's making lassoes and catching the sun and beating him until he promised to give longer days is told in the New Zealand, Samoa, Hervey and Tahiti Islands, as well as in Hawaii.

In New Zealand the lassoes became rays, which Maui tied to the moon so that when the sun went down the moon was pulled up.

Legends concerning the discovery of the method of making

fire by rubbing sticks together naturally abound in Polynesia, but the close relation of the ancient inhabitants of the various island groups is strongly marked by the unanimity of all the legends in ascribing to Maui a conflict with the gods of the underworld, who were his ancestors, and his victory over them, resulting in permitting him to take fire back to men and conceal it in various trees.

Another distinct group of legends cluster around a hero who is defeated again and again by the elves of the forests who replace in the night the trees which he has cut down in the day. Usually the birds which flash their bright colors among the leaves have their part in the contest. Finally the hero wins the aid rather than the opposition of the fairies, but he wins by kindness and not by resistance. This story is told with some variations in Hawaii, New Zealand, Samoa and Tahiti, or the Society Islands.

Legends of cannibalism abound in all the different Polynesian islands, but these are individual, and do not gather around any one person. In the Hawaiian Islands there are several legends of men who were part shark and part man, and stories of men captured and eaten under the name "fish," and of ghosts who, inhabiting one of the islands, feasted upon any visitors who came thither, and of man-eating chiefs, one of whom had a home in a definite locality known even to the present day. To the honor of Hawaiian history, however, it may be said that even the legendary references to cannibalism are not very numerous, and in actual history the accounts of man-eating are exceedingly rare.

Legends of a flood are found in many island groups, but these have reference to different individuals, while in the Mythology of the chief island groups common ancestors are found in Wakea, the father, and Papa, the mother of the human race. Of course the names are spelled with variations according to the dialect, changes which would naturally arise on island groups widely separated in space and time.

Even the chief gods of Polynesia are sometimes the children of Wakea. These chief gods are usually four; Kane or Tane, Ku or Tu, Lono or Rongo, and Kanaloa or Tanaroa, sometimes called Tangaroa.

Kanaloa is the pronunciation given in the Hawaiian Islands. He is the supreme god in many parts of Polynesia. Sometimes he is called the father of Maui. Very frequently he is mentioned as an ancestor with whom Maui has various contests. In New Zealand legends he is the father of all fish and reptiles. In the Hervey Islands he was the god of fire living in the underworld. He was killed by Maui and the fire taken away, but Maui afterward restored him to life. In the Tonga Islands Tangaroa is said to have fished the islands from the ocean depths. After finding the islands he settled down as the god of all artificers. In Fiji Tangaroa is known as the creator. It was said that after he had made the islands he walked over them. Wherever his clothes touched the ground there was a sand beach. Wherever he held them up trees and plants were able to grow. In Hawaii he is credited with having been dissatisfied with the work of the other gods in making man, therefore he made an image of his own into which, however, he could not implant life.

In the Hawaiian Islands Kane was sometimes called the "creator or master." The Hawaiian chants sing of

"The great ocean of Kane,
The ocean with dotted seas."
"The rows of stars of Kane,
The stars which have been fastened
Fast on the face of the heaven of Kane."

Kane was the god of the morning. The dawn was "Kane's bright path." The front door of a dwelling often opened toward the east "as a special sign of Kane worship." Human sacrifices and cruel rites and ceremonies attended his worship with perhaps greater regularity than with the worship of the other gods. In New Zealand Tane stands among the great gods as the "father of forests and of all things made from trees, and also of all birds and insects finding a home among the leaves and branches." In some of the groups of islands in Polynesia Kane occupies a position among the intermediate gods. Ku in the Hawaiian Islands, according to Fornander, was the architect among the gods, literally he was "the foundation." In New Zealand Tu was the war

god, "the father of cruel men, the fiercest children of heaven and earth." In Samoa also Tu was a war god.

Lono in Hawaii was "the voice coming over the waters." The word lono, or rongo, in Polynesian dialects usually has the thought of sound connected with it. The most mysterious of all noises to the ancient Polynesians were the wind voices sweeping over the storm-tossed waves of the ocean, therefore it is no wonder that when Captain Cook appeared to the Hawaiians, they at once worshipped him as O-Lono, the great god speaking on the waters. Lono, or Rongo, was worshipped in New Zealand as the "father of all cultivated food." In Mangareva Islands he was "worshipped as a mighty god visible as the rainbow."

Many minor instances of the common origin of Polynesian Mythology could readily be instanced, but enough has been written to show that a unique system of myths has sprung up in the Pacific Ocean entirely unlike and distinct from European Mythology, and at the same time of very great interest as evidence of the unity of literature in very ancient times among the Polynesians.

KAILILAUOKEKO

Chiefess of Kapaa, and the lute Kanikawai.

A Popular Kauai Legend. . Translated for the Annual.

KAILILAUOKEKO, the subject of this story, was the only daughter born of Hooipoikamalanai, the mother, and Moikeha the father, who were Kauai chiefs of the highest rank. At the birth of Kaililauokekoa she became the object of depest consideration, and was tenderly guarded by her parents till she became grown.

As this chiefess increased in stature she developed also in maiden graces with beauty of face and form, and her cheeks vied with the ohelo berries in their coloring, so that it became a saying, "cooked red is Puna by the fire of the woman."

Her greatest desire was to play konane, a game somewhat re-

sembling checkers, and to ride the curving surf of Makaiwa (keekee nalu o Makaiwa), a surf which breaks directly outside of Waipouli, Kapaa. She passed the larger part of her time in this manner every day, and because of the continual kissing of her cheeks by the fine spray of the sea of Makaiwa, the bloom of her youth became attractive "as a torch on high," so unsurpassed was her personal charms.

Upon a certain day her parents went into the distant fields with their people, leaving but her and her female attendant in the village, and as the chiefess was quietly engaged with her companion over the konane board behold there stood before them a strange man.

Now this stranger which suddenly appeared before them was not a plebian, or common person, but a chief of Molokai, whence he had come unheralded. As this stranger chief stood there looking intently on the amusement of the maiden he questioned thus: "Are you an expert in this, chiefess?"

"Yes," replied Kaililauokekoa.

The stranger chief then said: "Well, if that is the case let us two play, and if the resident win, so be it; or if the stranger win, so be it; to which they both agreed and immediately entered upon the contest, the result of which gave victory to the resident over the stranger, because nine stones were won by the young chiefess while only four were scored by the stranger chief, whereupon she cried out: "Say, you are defeated by the daughter of Moikeha."

As the chief heard the name of Moikeha he immediately looked up and asked, "Is Moikeha then yet alive?"

"Yes," was the reply, "but he has gone away, but what is it? Moikeha is here, alive, indulging in the curving surf of Makaiwa; the enjoyment of the beauty and loving comfort of my mother Hooipoikamalanai, and he will live on Kauai until his death."

"Truth indeed?" replied the chief of Molokai. "I supposed Moikeha was dead, whereas I find him measuring the length and breadth of Puna. Greatly beloved! He will not return with me then, for the reason you tell me, young woman, that 'Moikeha indulges in the curving surf of Makaiwa; enjoys the beauty and

loving comfort of your mother, and that he will live on Kauai till his death.' "

Continuing their contest of skill the Molokai chief shortly exclaimed: "Here, I am beaten again by you, and it is proper that the resident has won. But listen! When your father and your mother returns, give you both of them my kindest regards, and say, Heakekoa leaves you both his aloha." And as the chief ceased speaking he set forth on his return to Molokai, and the young chiefess continued enjoying the game with her attendant.

At this point we will leave consideration of the chiefess while we take up that of the young chief Kauakahialii and Kahalelehua, his sister. These were also of high rank, who dwelt above at the sacred ground of Pihanakalani, where Kauakahialii possessed that famous lute well known to all Hawaiians, by the name of Kanikawi, whose pleasurable notes could be heard down at the shore of Kapaa.

This perhaps suffices to clearly set forth the situation, therefore we will return to the narration of the doings of Kaililauokekoa.

While the young chiefess and her attendant were comfortably resting in their dwelling the evening shades gathered. They partook together of their meal, shortly after which the maiden fell asleep while her companion remained wakeful. Toward midnight the elder heard a pleasurable musical noise as of something tremulous, at times accompanied by the voice sounding as follows:

"Sacred indeed is Pihanakalani.
Sacred indeed is Pihanakalani
For Kaniaupiookawao.
O Kaili. O Kaililauokekoa,
Art thou asleep?

As the attendant heard this mele (song) she quickly aroused the chiefess, saying: "Here, you are asleep. Here, you are asleep. Awake!" Startled, the girl awoke and enquired: "What is this that you should arouse me thus at midnight?"

"List," said her companion. "What is it you ask? Some pleasing musical sound, the like of which I have never heard."

"Whence came the sound?" asked the chiefess. The attendant

replied, "From above here. A sound of the most pleasurable kind."

"What kind of a sound was it?" again enquired the chiefess.

Her companion replied, "It was thus:

"O Kaili, O Kaililauokekoa, say
Art thou asleep?"

"I greatly regret," said the maiden, "that I should have been asleep so as not to have heard the sound of this thing. Now then, let us both keep awake; it may be the sound will recur."

They remained watchful, strongly desiring to hear again the music which the attendant had heard. Thus the rest of the night was passed till day dawn, without the least indication of any sound.

As the day warmed and they were making preparation for their morning meal the chiefess said to her companion: "Say! let us eat till satisfied, then we will sleep till night closes the day, that we be wakeful this night. Perhaps the music will again sound forth."

Their meal only delayed them, and as soon as finished they laid down and slept the sleep of the dreamland of Niolopua, and on awakening, from the chilliness of the air, the sun was declining beyond the mountain tops. Arising they partook of food, then again engaged together in the game of konane. Thus they were passing the time till the princess, getting drowsy, said: "Say, when again will this sound repeat itself?"

The attendant made answer: "It can be ascertained; it will be foretold. When I am becoming heavy with sleep, the time will be near at hand for the sound to be heard."

When the chiefess heard these words she strove hard to keep herself awake, and as they were thus abiding the time she was startled by the exclamation of her companion: "Where are you. The time is near for the sound to break forth."

The maiden asked, "How are you assured of this?"

The attendant replied, "By the sleepiness that is pressing hard on me."

As they were talking in this manner the pleasant sound of the lute arose from the distant heights of Pihanakalani, which was distinctly heard by them both as it sang forth:

“Sacred indeed is Pihanakalani.
Sacred indeed is Pihanakalani,
For Kaniaupiokawao.
O Kaili, O Kaililauokekoa,
Art thou sleeping?
Sleeping in the breadth of Puna,
In the night drooping grass of Kapaa?
Curve surf rider of Makaiwa—
Beautiful daughter of Hooipoikamalanai.
O Kaili, O Kaililuaokekoa,
Art thou asleep?”

At the end of this song Kaililauokekoa quickly made answer, “I am not asleep; here I am awake and am seeking for the place where you may be found.”

They made ready at once, each with their small bundle of clothing, and set forth, and at dawn they found themselves at the dividing ridge, Kuamoo.

When Kahelelehua, the sister of Kauakahialii, saw the chiefess and her attendant ascending she immediately let fall a heavy rain. They were drenched through, of course, and cold, yet they both pressed onward until evening when they rested together in a hollow tree-trunk. They slept in this manner till they heard the cocks crowing when they felt there must be some house near them. They remained in their resting place, however, till broad daylight when they renewed their journey, with much preserverence, in spite of the rain which was pelting them with great force.

When Kahelelehua saw that Kaililauokekoa continued to press forward on her upward journey she turned to her brother and said: “Here is this chiefess persisting in her journey hither. I think we had better entertain her, because I have nothing else that I can do.”

The brother assented thereto, whereupon Kahelelehua immediately checked the rain and dispelled the fog and mountain mist which she had spread abroad.

As this condition passed away Kaililauokekoa saw standing before her a house wherein was a fire blazing. With her companion she approached close thereto, and at the same time they were observed by Kahalelehua, who called to them to come in.

They entered the house as invited, whereupon Kahalelehua hastened to remove the clothing of the chiefess and supplied her with a pa-u (skirt) made fragrant by the lauae herbs, and a skirt also for her companion. They girded themselves with these fresh garments and drew near to the place of the fire to dry and become warmed thereby.

A meal was spread before them and when everything was ready Kahalelehua stepped outside of the house and shortly afterward re-entered, carrying a wooden platter full of fish (manini) and sea-moss (lipoa); and the fish were still alive.

When Kaililauokekoa saw the fish jumping about she said to her attendant: "Our place is down by the shore, near the sea, but the fish is never brought to us alive, while this place in the mountain where the sea is far distant, yet the fish is served in a fluttering state."

The reader perhaps questions the source of these fish, but a full explanation thereof is this: They were from the fish-pond of Pihanakalani, a large pond that existed in those days, but at this time it is but a flat marshy tract, full of mountain brush.

When these travelers had satisfied their hunger, Kahalelehua said to the attendant of the chiefess, "Yonder is her sleeping house, but you will dwell with me in my shelter hut here."

When they had finished amusing themselves Kaililauokekoa went to the house pointed out as hers, and upon entering within she saw someone lying down who directed her to her sleeping place. As Kaililauokekoa looked intently she saw it was a handsome young man, therefore she resolved the matter in her mind and concluded not to sleep at the place designated as hers, but went instead and laid down beside the party who had just addressed her, who was none other than the chieftain of Pihanakalani, the one who owned the famous singing lute that has already been mentioned.

The reader will bear in mind the yearning desire of Kailikauokekoa which caused her to endure the hardships in ascending the mountain slope, without regard as to the dangers to her royal person, as we have seen, that she might again hear the song of the lute of Kauakahialii, but in her innocence, in consequence of her seeing the handsome and kindly features of the youth of Pihanakalani, her strong desire was overshadowed by the existing circumstances.

We shall lay aside for awhile the narration of the young chiefs and give attention to the parents of Kaililauokekoa.

When they and the common people returned to the chief's home at Kapaa, there was no sign of the young chiefess or her attendant, hence, much anxiety was felt on account of their strange disappearance. In consequence, the chief sent the common people out to search all over the land for the young chiefess and if found with anyone then to seize upon both of them and bring them before the chief, the king of the land, who is Moikeha.

In accordance with this royal command the common people sought here and there all over the land. The valleys, pits, cliffs, hills and plains, were crowded with the common people. All the ravines and alleys, the tree-trunks, the houses and farming shelters were examined, and the searching party continued in the wilds of the woods.

When Kauakahialii's sister perceived the danger that was impending she loosened the fine rain, the mist, the shower reaching unto heaven, and also the heavy rain, so that the water was running all over the land, destroying the trees and dislodging rocks from the mountains which were washed down into the streams and valleys; and the mist prevailed thickly, rendering difficult the passage of the searching party for the young chiefess. But all these obstacles which Kahalelehua had occasioned were as nothing to the people of King Moikeha in their quest.

When the people reached Pihanakalani where the chiefs Kauakahialii and his sister were residing they saw the attendant of the young chiefess sitting up at the house of Kahalelehua. They ran to her, asking if the young chiefess was there. Kahalelehua replied and said, "She is in there," and the people ran to the

house pointed out to them, and saw the object of their search and Kauakahialii, enjoying the pastimes of chiefs.

The searchers laid hold of the young chiefess and, lifting her up, carried her in their arms like all favorites and much admired ones, while Kauakahialii was seized, his hands tied with ropes and he was led down to Kapaa, a prisoner.

Upon arrival before the high chiefs, and in accordance with the command given, Kauakahialii was confined in a grass hut, the lower part of which was broken, but the young chiefess was taken into the presence of her parents.

Kauakahialii was imprisoned four days in the grass house. The first day of his confinement he was not given any food, nor even a drop of water. On the second day a boy by the name of Keka-lukaluokewa came along and peeped in through the breaks of the grass house where Kauakahialii was locked up and asked him, saying: "Don't they give you any food?" And he answered, "No." Then the boy went home and spoke to his parents, saying, "I greatly sympathize with that young man who is tied with ropes."

His parents replied: "Yes? then carry him some food, but you must be cautious. You must place the food, the fish and water, in the cocoanut shell, and you must crawl through the (kalukalu) fine grass and the (ahuawa) rushes. Carefully watch the people, for if they should see you it will surely be your death."

He carried the things as instructed outside of the house where Kauakahialii was imprisoned, and he enquired of the unfortunate, saying, "Can you catch this thing which I will throw to you?"

He replied, "I can; throw it."

The boy threw in his bundle which Kauakahialii caught, whereupon the boy returned home. Thus he took care of the prisoner until the time of trial, and on account of this care the features of Kaniaupiookawao was preserved in their beauty, but the places tied with ropes were dark and bruised.

We must look now as to Moikeha's treatment of his daughter.

When Kaililauokekoa came before her parents she was asked: "Did that boy come and flatter you?" The young chiefess answered:

"No; I went myself after I had heard the sound of some instrument playing to my name thus—all listen:

"Sacred indeed is Pihanakalani.
Sacred indeed is Pihanakalani,
For Kaniaupiookawao.
O Kaili, O Kaililauokekoa
Art thou asleep?
Art thou asleep in the soft grass of Kapaa,
In the broadness of Puna as it lies
At the curving surf of Makaiwa,
In the dear bosom of your mother Kooipoikamalanai?
O Kaili, O Kaililauokekoa,
Art thou asleep?"

"When the singing of this song was finished I quickly concluded that if the owner of this sounding instrument was a young man, he should become my husband, and if a young woman she should be my companion; if he be a full grown man he should be my husband, and if a full grown woman she should be my companion, or if an old man he should be my husband, or if an old woman, my companion. I myself went up to search until I found the owner of this sounding instrument, and he is that young man you have imprisoned."

When the parents heard everything as stated by their child, they immediately determined to place the matter before the priests, and upon their decision the king would abide.

Upon the Board of Priests of the king convening and hearing the statement of the young chiefess they quickly decided that the marriage to the one she had promised herself should be carried out and confirmed.

When their decision was announced Kauakahialii was at once sent for and brought before the assembly of chiefs and introduced to them and his beloved, whereupon it was publicly proclaimed before the people. The boy who took care of the young chief with food was also among the assembly, and he became the bosom friend of Kauakahialii in consequence of his kind treatment.

On the day the young chiefess became the wife of the chief of upper Pihanakalani, they became the chiefs of the whole Puna district of Kauai.

From that time the young chiefs had Kekalukaluokewa reside with them, and constant and enduring was the affection that prevailed in the household. In course of time Kauakahialii, perceiving one day that his end was drawing near, called his bosom friend before him and intimated the prospects of his death, and said: "Remain you with me until I die, then perhaps your wife shall be the beauty of Paliuli, Laieikawai, now being fondly borne hither on the wings of birds."

NOTES ON MAULILI POOL, KOLOA.

AS GATHERED BY J. K. FARLEY.

THE pool of Maulili, on Waikomo stream, in Koloa District, Kauai, is a few hundred feet south of the Maulili road bridge. It was a sacred and noted place of olden time.  The gods Kane, and his brother, Kanaloa, are said to have once slept above it, on its eastern bank and left the impress of their forms as can be seen in the apapa (see cut). The apapa in the vicinity is called an "Unu," and a "Heiau," but was never walled in, it is said. On the nights of Kane the drums are heard to beat there, also at the sacred rocks, or unu's, of Opuokahaku and Kanemilohae, near the beach of Poipu, Ahupuaa of Koloa.

In the Maulili pool lived a large Moo, named "Kihawahine." At the brink of the waterfall into the pool once stood a sharp pointed rock, named Laaukahi (Puukaua), blasted away to make room for a water gate a few years ago. To the west of the waterfall, down in the pool is the flat rock named Kahonunuimaeeae. The eastern wall of the pool, just below the resting places of Kane and Kanaloa, for a short distance, only, is called the "Pali o Koloa." The District of Koloa is named from this Pali, we are told by old Hawaiians. To the south of the Pali o Koloa, in the wall is a rock named "Waihanau" (see cut); as one of their mele has it:



“Aloha wale ka Pali o Koloa,
Ke Ala huli i Waihanau e, hanau.”

To the south of Waihanau is a projecting rock named “Ke elelo o ka Hawaii”—the tongue of Hawaii,—said to have been wrested and brought from Hawaii by the Kauai warrior Kawelo, of Wailua.

At the southern end of the Maulili pool start two large auwai’s, that watered the land of East and West Koloa.

One of the first sugar mills in Koloa, stood on the western bank of Waikomo stream, above Maulili pool, which was a swimming place for old and young in the days of clean and abundant water.

Two Hawaiian women were returned to Waimea, Kauai, by Vancouver, on his second visit to the islands, March, 1793, that had been carried off by Captain Baker in the *Jenny*, of Bristol, from Niihau, and were on the ship at Nootka when the vessels met. The names of these women are given as Laheina and Kaimalo.

CUSTOMS TABLE REVIEW, 1906.

IT seems eminently fitting and proper that space be given to a review of the Tables of Import and Export as given on pages 22 to 26 of this issue, as they present the record of our commercial conditions for 1906, as gathered from the Summary of Commerce and Finance of the United States for the fiscal year ending June 30, 1906.

Glancing at the totals for the year the balance of trade is seen to be still largely in the Territory's favor, notwithstanding a decrease of \$9,323,944 in our exports from that of the previous year, and an increase of \$768,730 in imports for the same period; the total figures for the past year's exports being \$26,944,824, as against \$36,328,768 the year previous, and importations to the value of \$15,639,874 as against \$14,871,144 in 1905.

The large decline in export value is accounted for by a reduction both in the quantity of our raw sugar produced and in the lower market rulings that have prevailed. The diminished output is largely, if not wholly, due to the shortage of labor which has been the unfortunate experience of all the plantations, causing inability to properly handle the season's crop, either in its harvesting, or cultivating, and in some cases both. The total exportation of raw sugar for the year is given at 712,560,997 pounds, a deficit of 99,042,332 pounds from that of 1905, though in the refined product its export of 34,041,640 pounds for the period under review is an increase of 12,923,582 pounds, not a bad showing for the second season's work of our one refining plantation.

Prominent in value in the list, classed under "Fruits and Nuts," is that which has made and is making wide strides, for it embraces the pineapple industry, both fresh and preserved. The exports under this head show to have advanced from \$193,373 in 1905, to \$287,603 the past year, an increase of \$94,230. Of this amount canned fruit claims a gain of \$85,706. From present indications in the extension of pineapple planting and the estab-

lishment of new canneries on this and the other islands of the group to meet the demands of a widening market for our preserved product, the time is not distant, in the mind of many besides those interested in their culture, when it will rank high among the industries of the islands.

Coffee makes still further advancement in quantity and value of exports for 1906, its amount being 2,147,154 pounds, valued at \$248,593, a gain of \$74,976 upon that of the preceding year. It is pleasing also to note that importations of this commodity, which drew forth a mild protest in our last issue, is among the diminished items of the year, its imports in "prepared form" having fallen off nearly \$2,500.

Rice takes an important place again in our list of exports, the industry having wonderfully revived from the critical condition recently experienced, as set forth in our last issue. Planters have been favored with good crops and they have realized better prices, so that the quantity exported last year reached 5,739,500 pounds, (more than doubling that of 1905), and valued at \$223,012, a gain of \$141,598 for the period mentioned. Additional benefit is also to be noted in the larger local demand for home consumption consequent upon diminished importations.

Hides and skins also show continued improvement in export values over the preceding year's figures, despite the requirement of our local tannery which also makes a most favorable showing in exports besides supplying the home market in leather to a large extent. Tallow also shows increased value of exports. The figures of value for these several items for 1906 are as follows: Hides and skins, \$126,425, an increase of \$42,333; leather, \$20,033, an increase of \$14,591; and tallow, \$7,046, an improvement of \$1,043; a total gain of \$57,967.

Our apiary products are making strides for permanent recognition as an industry to be reckoned with in the category of domestic exports. Beeswax, which in 1905 showed some decline, rose this last year to \$6,745 in value, a gain of \$4,117, while honey jumped from \$21,977 to \$34,048, an increase of \$12,071; an improvement under this head of \$16,188 for the year.

Contrary to expectations and the tenor of our remarks in last review touching the sisal industry, the fibre exports for 1906 appear to have suffered a decline of \$982, the value for the year being \$9,649. Whether this is due to a falling off in the amount exported, or in its realization is not apparent in the tables at hand.

Respecting our importations, in the absence of details of such from the various foreign countries with which we have had to do, our review has to deal with figures of trade with the United States. As has been shown imports have increased considerably, but with the exception of automobiles there is little of the luxury class shown among the articles of increased value for the year. With certain exceptions the more prominent pertain to articles of development and improvement that in due time will enhance our revenue, principle of which are timber and lumber to the value of \$625,218, nearly doubling the figures of 1905. The various lines of manufactures of wood show also a slight gain, mostly in mill work. This increase, however, is rather against us since it is more in value than quantity, owing to the steady advancing of rates during the past year. Bricks, for building, as also paints, and lime, show increased values, but cement shows a decrease offsetting two-thirds thereof.

Breadstuffs, mainly barley, corn, and mill feed, is to be credited with \$69,233 from the States, and Japan contributes from \$15,000 to \$20,000 more, to judge by previous years. Of animal importations, increased value in the following is shown for the year, viz.: Hogs, \$15,663; horses, \$2,260; mules, \$23,755.

Under the head of "Provisions, Meat and Dairy Products," we find that beef—canned, fresh, and salt,—has increased \$30,452, the imports for the year being 1,147,848 pounds. Hams and pickled pork also increased, but other hog products and mutton declined. Oleomargarine and poultry increased, as has also the various dairy products of butter, cheese and milk, this latter line showing an advance of \$24,169 for the year.

The favorable showing of rice exports, already mentioned, is enhanced by the decline in the import value of this commodity from the States of \$138,166, for the year, and a proportionate re-

duction is expected would be shown in the imports from Japan, were its table available.

Imports of paper for the year at \$176,705 is but a slight gain upon 1905, but in the varieties under this head, printing grades reached \$37,805, an increase of about 50%. Writing papers and envelopes, and playing cards also show an advance, but "all other" lines falls off \$28,188.

The foregoing review has much to encourage the "diversified industry" and small farmer theorists. And with more concerted action on the part of farmers and dealers, and a better public spirit for the due appreciation and encouragement of home productions, the day should not be distant when our imports would not embrace articles we are quite capable of producing at home.

Two main articles of increased importation is noted which could well have been spared this territory, viz.: opium, and spirits and wines, for they make for the ruin and degradation of the people. The former article, in the prepared smoking class, jumped from \$1,525 value of importations in 1905, to \$118,118 in 1906, from the United States, besides what may be shown as direct from China. Spirits and wines, including dutiable from the United States, show an increase for the year of \$126,308, and Japan's flood of sake and wine is yet to be learned; its average for the past four years was \$186,132. These two articles account for over one-half of our increase in importations for the year.

BEAUTIFYING HONOLULU.



MENTION was made in the Retrospect for 1905 of the steps in progress for the general improvement and beautifying of the city of Honolulu. The spirit of enthusiasm that the formative meeting engendered brought to the force an energetic and practical Central Committee that districted the city and suburbs, and assigned to most likely residents therein the general supervision of its improvement and care, the principal plank of the committee's platform being: "To promote the improvement of Honolulu through the beautification of the city and the advance-

ment of measures having to do with the designing and fitting of grounds for public and private use and enjoyment."

This planned for the elimination of fences, trimming foliage, setting out trees, etc., which in turn brought the attention of the Telephone and Electric Companies to the law requiring them to notify the Superintendent of Public Works of proposed tree cutting and trimming, so as to have the work done in accordance with views of the Board of Agriculture and Forestry, and avoid the indiscriminate mutilation of trees so generally complained of.

In pursuance of the formulated plan improvement clubs formed in different parts of the city to carry out work along these lines in their immediate neighborhood, not only in self interest but for the encouragement of others and benefit of the whole. Much public interest was manifest, and during the spring months shade and flowering trees were planted along many of the streets in the residential parts of the city, furnished for the most part by the Board of Agriculture and Forestry, to which work the officials of that department lent material aid. One lady resident furnished 100 plants ready to be set out, with which to line Pensacola street, that in due time it might become a "golden shower" avenue.

Noting the development of this civic spirit, first led by the residents of the Kaimuki district, our mind reverts to the short visit here in March, 1895, of Prof. B. G. Northrup, the originator and organizer of the Village Improvement Society movement in the United States, at which time he delivered a lecture in the Y. M. C. A. hall on the subject, and on which occasion the advisability of an Arbor Day for Hawaii was mooted. The good seed sown has been slow in germinating, but having taken root promises continual growth for the perfection of tropical beauty.

The Hawaii Promotion Committee rendered good service in arousing public interest to the subject and launching forth the movement under its auspices. Though largely in the interest of "tourist attraction" it nevertheless appealed to all officials, property owners, and householders to do their part in improving the conditions of the city and increasing its attractions.

An outcome of this movement led to the invitation of Chas. Mulford Robinson, the "city beautifier," by the Board of Supervisors and the General Improvement Committee, to advise with reference to a Park system for Honolulu. By the time of his arrival various suggestions had been mooted in the press for "beautifying" certain prominent localities, some of which schemes partook of ancient days of classic Greece, or elsewhere, rather than tropical isles of the Pacific. Mr. Robinson quickly shattered all such idols, as well as projects for straightening and widening certain streets.

Accompanied by various officials and public-spirited citizens he devoted some time to visiting all parts of the city and studying the situation. Needless to say all departments of the government were practically at his service to facilitate his labor, that he might complete the work in hand in the limited time he could devote to Honolulu and prepare his report thereon.

Under date of March 14, 1906, Mr. Robinson addressed his report on "The Improvement of Honolulu" to the Board of Supervisors, County of Oahu, which in type makes an 8vo. pamphlet of 37 pages, with plans and map of the city, a portion of which report we summarize as follows:

INTRODUCTORY.

As requested, the city and its immediate tributary country has been examined, with a view to making recommendations and suggestions for its improvement. In these which may be called practicable I am not restricted to the immediately possible, but to plan toward the years to come; the idea being to accomplish at once as much as may be, making sure that each step counts directly toward a complete and systematic scheme.

GENERAL CONSIDERATIONS.

Among these might fittingly be discussed the future of Honolulu as the playground of the Pacific tourist travel. There should be a higher appeal than commercial motives. Whatever development is given the city and its surrounding country should be first of all for the comfort of its own citizens, who pay the bills and live—not visit—here. What will improve it for them, make it better

worth living in, add to the comfort and pleasure in life of its own citizens, and make it more beautiful to them and add to their contentment and happiness will also make it more attractive to strangers.

The town, which is the home of many, must have an individuality in keeping with its citizens, and must express it if it is to please them and attract others. There never have been two cities just alike, and he would be a ruthless iconoclast who would try to pattern one city after another. The individuality of Honolulu must be preserved or its charm will depart. Cut through broad avenues, build a hot and sunny quay, widen and straighten the streets, etc., and when all is done the winsomeness of Honolulu will have departed, and be always spoken of as the town that was spoiled. So my first charge is, be true to yourselves. Far isolated from other cities, develop your own individuality, be Hawaiian, be a more beautiful Honolulu. Then, and only then, will you have distinction.

REPORT DIVISIONS.

The consideration of the city will be treated under the heads of: Business section; residence streets; city entrances of railroad station and water front; official center at Union (formerly Palace) Square; boulevards and parks, present and prospective; children's playgrounds, and drives.

THE STREETS.

Their Plan. In the older Honolulu it is clear the streets were narrow and winding, making graceful curves and meeting at other than right angles. In all this there was a certain appropriateness, the narrow streets were shadier and cooler than broader thoroughfares could be, there was time enough and no great volume of travel. They were suited to the place, were beautiful, and imparted an air of repose and restful deliberation that could not fail to charm visitors and must have been a source of gratification to residents. As far as possible retain this character. The needs of a growing traffic compel modifications here and there. Streets have been broadened and straightened that business and getting about may be facilitated, but never without a loss of

charm. The construction of a city must, indeed, be designed to facilitate its business. Honolulu is not, nor does it aspire to be, an industrial, great commercial or financial city. It is that rare thing a city of delight, seeking to give leisure and pleasure; flaunting not volumes of black smoke, but green hills and blue seas, the rainbow and the palm. You can afford to be conservative about changes; to shun the "checker-board plan" as you would the plague, and to retain the narrow, winding streets.

The Trees. In the treatment of the streets of old-time character there is little chance for tree planting on the narrow walk and it would be a mistake to attempt it. Let the trees be, as now, inside the lot line, shading the walk by throwing over it the protection of the garden. On the newer and broader streets, where trees are planted between curb and walk it is important that there be uniformity. Whatever the number of improvement clubs on any street, they must get together and agree on the tree question and see that only one kind is used in the planting of that particular thoroughfare.

Signs. The business sections of Honolulu have more signs projecting over the sidewalks than any city I ever visited. They are of little value when everybody has them. In San Francisco they are prohibited.

Poles. On all the streets the poles ought to come down. Bad anywhere, these are much worse here. A desirable arrangement would be the construction of a municipal conduit, the companies paying an annual rental, or, a legislative enactment requiring them to put their wires under ground at the rate of a certain number of miles each year would inflict no unjust hardship, and by degrees would rid the streets of poles.

Fences. The front fences, a distinctive mark of the old Honolulu, should go. With the beautiful hedges you have here, a street fence, or a division fence between street and building line, is very like an affront. If the improvement clubs that desire a more beautiful city would work for the removal of the wooden fences on the streets, much good would be accomplished.

Private Gardens. Little of the planting in the gardens of the city house-lots is good, the grounds being generally "spotty" in

a number of isolated premises, and frequently much too full. There is need of teaching here (where a tropical jungle is so often attempted), the gospel of beauty of an open lawn, with the planting put around its borders, where it will take a waving outline. Avenues of royal palms, too, have been weakened and shorn of half their majesty by the curve. No tree is statelier, and an avenue of it should be straight, with an adequate accent at its end.

New Street Plans. On the newer, broader, residential streets error is made in retaining the narrow walk of the older ones, whereby it becomes neither one thing nor the other; without the charm of lane, nor an up-to-date street of its kind. An attractive type of such street, sixty feet between lot lines, would be three feet in turf to walk, six feet walk, and ten feet in turf to curb, allowing twenty-two feet for the roadway. It is an unusual residential street—if without car track—that the traffic requires more. Nor is the so-called “parking” between walk and curb of æsthetic value only. As the city grows and such streets are laid out let them have these proportions, but disturb the older part of Honolulu as little as possible. In fact, in the development of suburban tracts I would like to see some on the old lines, which partake of English towns, always more picturesque than the American.

Street Intersections. Here and there in the city the juncture of diagonal streets create a wide space, as at the conjunction of Alapai, Kinau and Lunalilo. Such points should be parked at the center, in a circle or triangle, curbed and filled with good earth, planted to grass and with a tall palm in the center would become an attractive feature in the street plan.

New Tracts and Thoroughfares. A new thoroughfare, running diagonally from Beckwith street to the College Hills tract, east of the rocky ledge, would be of value to Manoa valley in providing a second means of entrance, a short cut, and a street without car tracks. The plan for a road diagonally across the valley from Kaala avenue to Beretania street would give connection with the park and Diamond Head. The prolongation of Waikiki road to Beretania street would be a convenience in its shortening

of distances, and make available a thoroughfare (Young street) into town unbroken by car tracks. Waikiki road and its extensions are developing as the boulevard of the city and are entitled to improved connection with the town. Pauoa valley invites opening for residences, and a scenic need adjacent to Honolulu since we are dealing with work to spread over many years.

FOCAL POINTS.

Railroad Station. This, in many communities the main point of entrance and egress, is here overshadowed by the greater significance of the water gate, thus giving an opportunity to concentrate attention upon its development. No focus of the city should be neglected and the railroad station and its main approach is receiving commendable treatment through the enterprise of the interested company.

Water Entrance. To this much thought has been given. The big new slips, which will establish this entrance, extend for the present east of Alakea street and reach to Allen. Almost ideally located in front of this site is the block occupied by the old fish market, now practically abandoned, but public property to be developed as seems best. Here, then, is the place to create that formal and attractive entrance to the city that shall insure good and lasting impressions to visitors and make for residents a pleasanter means of access to the docks than any now possessed.

The block is 350 feet long by some 230 feet wide. I suggest to set back the Allen street line in a curve thirty feet at the middle, or entrance, so as to give greater space to traffic at the point where it most converges, and emphasize the invitation to the open space behind which a straight line would fail to do. On the walks curving with these arcs to the entrance at the center I would have the lei sellers, an equally convenient position for them and the public. At the entrance, 75 feet wide, should be a tall and handsome gateway, the architectural achievement of the city, and might be so arranged as to provide a place for the band. In the construction or ornament of this gate the word "Aloha" might well be incorporated.

Passing through the gate the road and walks lead straight away to a point 100 feet from the further end. Here they fork,

curving, to the two corners of Alakea and Richards streets. All the space within the block area should be so planted with appropriate ferns, palms and other tropical foliage that the entrance to Honolulu would be, as it ought to be, through a garden.

Union Square. The third focal point of the city is the administrative center, well established at Union square.

Few cities in the United States are so fortunate as Honolulu in an early grouping of public buildings around a single open space. For its present significance, its growing importance with enlarging official business, and for its past, with its increasing historical interest as time goes on, this center demands careful and worthy development, the more so because its present irregularities, its sunny waste at one end, its jumbled aspect as to the location of buildings, and general air of shabbiness imparted by the grounds around the Judicial structure gives an unpleasant impression where the effect should be the reverse. In remodeling this space I trespass as little as possible on former conditions and emphasize the historical significance of the center while securing the desired effect.

In the proposed plan the main features are the undisturbed area occupied by the grounds of the Executive building; the bringing into the scheme of the Kawaiahao church, the removal of the Opera House, and of the garage on the makai side of King street, the purchase of land for these purposes and the utilization of waste space in the street.

In more detail the plans contemplate the purchase of the strip between the grounds of the Judiciary building and Punchbowl street and of the triangle between Richards and Mililani streets. Clearing the space thus secured Kawaiahao church is opened up to view from Union Square and becomes appropriately one of the group of historical structures gathered there. A new street, centering on the statue of Kamehameha, with that closing the vista at one end and the Lunalilo tomb in plain view at the other, gives a more direct access to Punchbowl street and leaves between it and King street a plot to be parked with turf and low shrubs. Corresponding with this street, on the other side of the statute, a street connection with Merchant opens an attractive

vista and leaves a like plot between itself and King, to be parked with turf and low shrubs. These double roadways will make provision for increase of traffic at this point in the years to come and give King street through this, its official or state section, the character of a broad parked thoroughfare.

Other features of the plans include contemplated sites for Post-office, Custom House and Opera House, thus centering into the group plan all the official departments within two blocks of the water front.

The balance and larger half of the report treats of the parks, scenic reservations, playgrounds, boulevards and drives which will be desirably ideal to attain to, and to all of which our various improvement clubs are working with commendable zeal.

The government itself is steadily aiming in this direction and doubtless with legislative aid the coming year more active effort will be put forth along all lines suggested.

In this movement the billboard nuisance has been fought against strenuously for its suppression, public opinion being supported by the action of the Promotion Committee in concert with the Chamber of Commerce and Merchants' Association. Some modification of the evil has resulted, but it is apparent that the subject requires legal treatment rather than moral suasion.

IN KAHEKILI'S avenging the death of Hucu in the revolt of Oahu chiefs against the Maui King's invasion, one of his chiefs, named Kalaikoa, caused the bones of the slain to be scraped and cleaned, and the quantity collected was so great that he built a house for himself, which was called Kauwalua, situated at Lapakea, Kahauiki, in Moanalua, about 1785. This is mentioned by Fornander. Present day natives speak of a "pa iwi" (fence of bones), as having existed at this locality, and Corney in his tour with Manini in 1818 tells of visiting in about this same place the "ruin of a large stone house, or fort, which had formerly belonged to a great chief; it had a double fence of human bones round it; these were the bones of his enemies killed in battle before the islands were visited by Europeans."



HAWAIIAN PA-U RIDERS.

D OUBTLESS someone with an eye for the picturesque suggested to the Hawaii Promotion Committee the desirability of adding to the otherwise attractiveness of Honolulu's annual floral auto parade that of the Hawaiian pa-u riders—native women in their national riding costume of flowing skirts in riding astride,—as an incentive for the recovery of an almost lost art, which, if revived, might be looked upon as a valuable tourist attraction for the islands. The suggestion struck a responsive chord throughout the community, for who of the older residents but what regrets the gradual narrowing of things Hawaiian; or of the malihinis (new comers) but what sigh for some evidence of that free and graceful custom of former days which kamaainas delight to talk about, and early writers tantalizingly describe.

That the sight of Hawaiian women on horseback in their old

style pa-u costume has become such a rarity, especially in the cavalcades such as used to be seen in the days of the Kamehamehas, is due to many causes. Nor is the decline to be attributed to any educational or such like influence.

An effort was made in the latter days of the monarchy to revive the custom, and upon at least two occasions native women either noted for their good riding qualities or the possessors of fine horses were, in a sense, commanded to participate in an equine procession. But for one reason or another this attempted revival of a national custom of early Hawaii failed even under royal auspices.

Knowing the fondness of the race for horses and the ease and grace with which they all ride, and the women remarkably so, it is natural that visitors express surprise that the healthful exercise and pastime should become comparatively obsolete.

But let us look at the changed conditions of the race with the growth of the country's commercialism and progress toward a higher civilization; our more expensive living of the present day, and our modern methods of travel.

In the first place the resident native population has unfortunately been steadily declining, notwithstanding the city allurements at the expense of the country districts. Honolulu's increased numbers are of the various foreign nationalities rather than in Hawaiians. This growth of the city has trenched on kuleanas and areas of the natives that formerly furnished place and pasture for two or more horses to many householders. These animals too were more a matter of necessity before the advent of hacks, trams, electric or steam cars became the conveniences they have in turn proved. Comparatively few natives in this city are able to maintain their horses on imported feed, and pasturage rates have advanced as its acreage has reduced and land values increased, so they have been dispensed with and modern conveyance depended on in their stead. It is therefore to be seen that the natives of the city are severely handicapped in their passion for horseback riding. And in passing it is to be admitted that horseback riding among the foreign residents is less a feature

than it was owing largely to the more strenuous life, and convenience of public conveyances.

Enquiry has been made as to the origin of the Hawaiian women's custom of riding man fashion with the pa-u, or flowing skirt.

It is to be borne in mind that at the introduction of horses into these islands, which was in 1803, in order to show their utility and overcome Kamehameha's prejudice against them on account of the amount of food they required, sailors mounted them and rode them back and forth along the beach. Their first acquaintance therefore with the animals was to ride them astride, and considering the number of years that followed before the arrival of white women with the side saddle, one can readily understand that the natural habit (to them) had become a fixed one before they knew any other, the innovation of which was no doubt looked upon as an unstable method for the style of riding of a semi-barbarous people in a rough country.

Furthermore, the trade relations between these islands and coast ports of Central and South America in the early days lent a confirmatory influence to the Hawaiian custom if it was not responsible for its origin, for the women there rode astride also. In a work on travels in South America and the Sandwich Islands in 1822,* a lady of Peru is pictured on horseback, astride, with wide trousers and wrapped in a deep shawl extending nearly to the feet, a rather striking costume that might easily lend its influence to the adoption of the riding pa-u of the Hawaiian women.

Under the auspices of the Promotion Committee already mentioned, a company of some forty or more Hawaiian women riders under the leadership of Mrs. Lizzie Puahi, formed themselves into an association for the maintenance and observance of the pa-u riding custom, and to join in parade on stated occasions and public anniversaries. They made their first appearance in a competitive contest as a feature of the Annual Floral Auto Parade, which took place this last year on Washington's birthday, and attracted much attention. They again lent themselves as a feature of attraction on June 11th, Kamehameha day, by a

*Narrative of a Visit to Brazil, Chile, Peru and the Sandwich Islands, by G. F. Mathison, London, 1825.

processional parade through the principal streets of the city, winding up with an exhibition at Kapiolani park and a grand luau.

Since then another pa-u riding society has been formed with Mrs. Theresa Wilcox at its head, taking as an occasion for their introduction to public notice an opportunity for exhibition riding before the moving picture camera during Mr. R. K. Bonine's visit to the islands for a Hawaiian series of moving photographic views for kinetoscope reproduction. It is to be hoped that the revival spirit animates these two societies that they may prove a nucleus for strong growth under commendable rivalry rather than the spirit of jealousy should animate and wreck them both.

There is a strong under current feeling of regret among the native race at the decadence of many things of ancient Hawaiian life. Some of these, of course, are best left to oblivion, but the national sports of surf-riding, canoe racing, horseback riding, and such like out-door pastimes in which they enter with such a spirit of enthusiasm and abandon that is as enjoyable to the beholder as to the participant, it is hoped will continue to be maintained.



Older residents of Honolulu recall readily the Saturday afternoon feature that for years predominated the city. No sooner had the four o'clock signal for ending the work of the week sounded than the streets would take on a spirit of animation with everybody out in holiday attire. As many as possessed horses brought them in requisition, and all that could come into town from the outer districts to participate in the exhilarating sport of the day. Cavalcades predominated, rather than long processions of two or even three abreast. The broader the party, to the limit of the width of the street, seemed the aim and acme of their enjoyment. This feature was noticeable by the way riding parties would widen in traversing the streets as the day wore on. Not infrequently if two parties met one would wheel about and join to swell the ranks of the opposing company. All classes and conditions of Hawaiian society—including a share of the foreign element—would form these cavalcades, with now and then well known distinctive and distinguished parties like the King's, Paki's, the Meek's, Wond and Swinton's, though the ladies of these latter two graced the side saddle and were famed for their expert riding.

The kihei pa-u, or pa-u holo lio, as the riding skirt was called, was of plain bright colors, or large distinctive pattern in those days rather than somber shades, hence the brilliancy of the animated scene can better be imagined than described.

Occasionally a mix-up would occur as a street width of riders in wheeling round a corner would meet a like cavalcade, but as a rule they would manage to make way good naturedly and seldom with mishap.

While the same scenes prevailed on all holidays we do not recall that it was entered upon with the same spirit of intensity as was crowded into Saturday's waning hours.

Another occasion that used to appeal to the native women for their riding propensities was on rainy days; the harder the better for their thorough enjoyment. With or without pa-us, it made no difference, they were out for enjoyment, not for parade, and it mattered little to them whether their skirts hung wet and be-draggled, or waved gracefully in sunshine and breeze.

MARINE CASUALTIES FOR 1906.

THE year 1906 will be remembered as fraught with much disaster, and deep-sea shipping connected with these islands appear to have met with mishaps of unusual frequency. The heavy weather of last winter and opening spring seemed to render our Pacific Ocean a misnomer, in which this group was fated to receive its share, though the disasters around our immediate coasts were, fortunately, comparatively few. The list of casualties to shipping connected with these islands since last Annual embrace the following:

Fire on the steamship *Texas* was discovered shortly after her arrival in February from Tacoma, when the compartment in which lime was stored was opened. The services of the Fire Department was requisitioned and labored hard several days to get it under control. Fortunately the vessel did not sustain material damage.

Barkentine *Fullerton* and steamer *Argyll* suffered damage in a heavy gale February 7th, en route from Port Harford for Kihei, Maui, so that they made for Honolulu. The steamer had to jettison part of her oil cargo to outride the storm, while the barkentine lost sails, parted towlines and smashed her rudder post.

Schooner *Lady* sprang aleak in the February Kona storm in which she battled several days, and was assigned to Rotten Row.

The army transport *Buford*, five days out from Nagasaki en route for Honolulu, in February, fell in with the Japanese barkentine *Tonomoto Maru*, dismasted and under jury rig, flying signals of distress and on the verge of foundering. Her crew of 37 Japanese were taken off and brought to this port.

Schooner *Mary E. Foster*, with a cargo of sugar for San Francisco, March 5th, in leaving port in tow of the *Fearless* grounded on the Ewa side of the channel. After several hours work, by the aid of tugs, she was hauled off at rise of the tide and re-

docked. Upon survey her rudder post and rudder were found badly damaged, necessitating detention in port for repairs.

Schooner *Kauikeaouli* was partially dismasted in a Kona storm off South Kona in the early part of March, and was towed to Hilo by the *Kaiulani*.

Schooner *Mokihana* was driven on the rocks at Kahakuloa, Molokai, during the March storm and became a total loss. Vessel and cargo valued at \$1,000; uninsured.

Bark *Gerard C. Tobey* from San Francisco for this port put back March 26th in a leaky condition, with the loss of the greater part of mainmast, having encountered terrific weather. Her cargo was transferred to other vessels and she underwent repairs.

April 3rd the ship *Elwell*, with lumber, arrived at Kaanapali after a long hard trip from Port Townsend, having met with successive gales in which she sprung aleak and had to jettison her deck load. After discharging she came to Honolulu for repairs.

Barkentine *Archer* arrived at this port April 16th, twenty-five days from San Francisco, having been dismasted March 29th when six days out. First the bowsprit broke off close to the collar, followed by the foretopgallant mast, the foretopmast, and then the maintopmast. On clearing the wreckage one of the yards was saved which was lashed to the foremast and sail bent on it, and the voyage continued in this crippled condition.

Bark *Geo. W. Curtis* from San Francisco for Honolulu, with a heavy cargo, came into collision with the schooner *Mindoro* in which the second mate of the *Curtis* was killed and the captain severely injured, the vessel also sustaining damage, so that she put back to port for repairs and medical aid, arriving there April 25th. The bowsprit of the schooner crushed into the *Curtis'* mizzenmast, and the jib boom, held by its chains, went through planking and demolished deck cabin, etc., necessitating repairs costing \$4,000.

German bark *Paul Isenberg* arrived May 6th, 281 days from London, having sustained injuries in a fearful gale Oct. 22, 1905, in which she lost all sails, breaking topsail yards and doing deck damage that necessitated putting back to Port Stanley, Falkland

Islands, for repairs, where she was delayed three and a half months.

Schooner *Olga*, from Honolulu for Mahukona, Hawaii, to load sugar, went ashore May 4th on the windward side of Kahoolawe by current and heavy swell during a calm. The rudder was quickly broken off and an hour after striking the vessel was half full of water. The mate and two men took boat for Lahaina for relief, meeting the *Mauna Loa*, which went to the rescue of the captain, his wife and rest of the crew. An effort was made later by the steamers *Noeau*, and *Maui*, to pull her off, but without effect, and she became a total loss.

German four-masted training ship *Herzogin Sophia Charlotte*, en route from Bremen to Honolulu, had all her lower topsails blown away in a gale off Cape Horn, and the next day the main-mast carried away at the cross-trees which, with other damage, necessitated putting back to Montevideo for repairs, where she arrived September 20, 1905, leaving there again February 23, 1906.

Bark *Willscott* on leaving Honolulu for Kahului, Maui, May 26th, to complete her sugar cargo, grounded off Waikiki. After nearly an hour's detention she responded to the tug's effort and was able to continue on her way, without apparent damage.

Fire was discovered in the forward hold of the iron ship *Tillie E. Starbuck* about 10 p. m., July 22nd, as she lay at the Railroad wharf in this port loading sugar. By aid of two engines from the Fire Department all danger was overcome by 12:30, but not until some 7,170 bags of sugar was so scorched as required unloading and sending back to the plantation for remanufacture.

The Pacific Mail steamship *Manchuria*, from San Francisco, ran aground at 4 a. m., August 20th, upon the coral reef off Waimanalo, Oahu. Her large number of cabin passengers were landed and brought to town over the pali. Prompt aid was sent from this port; viz: steamers *J. A. Cummins*, tug *Fearless*, *Maui*, the *Manning* and others, but to little purpose. The cable ship *Restorer* later also took position for assistance, and all was done to insure safety awaiting the arrival of Captain Metcalf, who was

sent down by the Company to take charge of and direct the rescue work. The ship was lightened of all freight and coal; heavy anchors placed in position to windward, and portions of the reef obstructions blasted out for a passage. When all was in readiness she was hauled off by her own power and the aid of the *Restorer*, *Manning* and *Iroquois*, at noon of September 16th, and towed to anchorage off port, coming in to her dock next morning. An examination of the ship showed some bent plates but no leaking to speak of. Some repairs to machinery was required, on completion of which she left for San Francisco, October 8th, convoyed by the battleship *Wisconsin*.

The army transport *Sheridan*, from Manila, struck on an uncharted coral hump abreast of Barber's Point lighthouse, Oahu, at 1:38 a. m. of August 31st. Shortly after daylight vessels went to her assistance; the *Fearless*, *Manning*, and *Claudine*, in the effort to haul her off, and the *Helene* to bring the passengers ashore, of which there were 132. Hopes were entertained of getting her off early with full tides, but she held her place till she was lightened of all freight and her coal dumped overboard. Fortunately the weather held good with the exception of a couple of threatening days when matters looked critical. Special helpers, with some 500 tons of wrecking gear, was sent from the Coast by the transports *Thomas* and *Buford*. All being in readiness October 2nd she was hauled off into deep water, and on being towed toward port by the *Iroquois*, she was beached off Pearl harbor to avoid capsizing. On the 6th she was hauled off again and brought safely into port.

September 16th, the Pacific Mail steamship *Mongolia* grounded on the outer edge of the western reef off Midway Island, at 2 a. m. Part of her cargo was jettisoned and the passengers all landed. The *Buford* was at once made ready here on orders from Washington, and left at 11 p. m. of the 17th to bring the passengers to Honolulu. She was followed the next day by the *Iroquois* and a little later by the *Restorer*. Before the arrival of outside aid she was worked off the reef on the 21st, and two days later she left for this port accompanied by the *Buford*, with her mails and passengers, arriving on the 28th, and leaving again

on the 30th for San Francisco, somewhat leaking, but with extra pumps to keep the water under.

Schooner *Kauikeaouli*, with a cargo of fertilizer for Hawaii, was dismasted September 27th at 3 p. m., about thirty-five miles to leeward of Kahoolawe, through high running seas. Two hours later the crew took to the boat and abandoned the vessel, which was badly leaking, and landed at Kawaihae, Hawaii.

The Japanese steamer *Chiusa Maru*, from Kobe for this port, ran aground November 8th at the entrance to the harbor, on the eastern side, at 6 a. m., broad daylight, without waiting for pilot or doctor. Aid was quickly tendered her. All passengers were landed, and the *Ke Au Hou*, *Kinau*, and *Manning* stood by her, and at high tide the same afternoon pulled her from her dangerous position.

MORE WATER DEVELOPMENT.

THE KOHALA DITCH.

THE Kohala Ditch, so christened by Mrs. Samuel Parker at its opening June 11, 1906, for the flow of water for the irrigation of cane lands of the Kohala plantations, has its origin in the Kohala mountains at an elevation of 1030 feet, where it taps the Honokane stream. From here its course shows a fall of about five feet to the mile along ravines, across gulches and through mountain slopes to the plantation lands, occasionally seen, but for the most part lost in tunnels so that it is only in the last few miles that it partakes of the open waterway character and becomes a real ditch.

At this inauguration of its service a supply of 20,000,000 gallons of water per day was started, though when finished the ditch will furnish 70,000,000 gallons. Besides irrigating some thirteen thousand acres now in cane, and increasing the output from two to four tons per acre, it will make possible the profitable cultivation of thousands of acres of land yet idle. There are said to be ten thousand acres of such land now, and it is early yet to esti-

mate the area which will finally be made available for successful culture when the whole ditch is completed.

There are forty-four tunnels in the Kohala ditch at present the longest of them being 2370 feet. They are seven feet high six and a half feet wide at the bottom, and eight feet wide at the height of five feet; the top being arched. The conduit completed is over fourteen miles of the twenty-one eventually planned for, the remaining third to be finished in a year. The cost of the work so far is placed at \$500,000, and the remainder it is estimated will entail a total expenditure of \$600,000 for the entire ditch.

The boring of the tunnels was an impressive and dangerous feat, the openings in some places being almost inaccessible until trails were cut out of the mountain sides. Six men and many mules were killed by falling down these precipices in the progress of the work. Most of the boring was through soft rock, though machine drills at times were required.

Many difficulties were experienced in prosecuting the work, particularly in the tunnels, in which the sturdiest of Japanese workmen would succumb after a few weeks' labor in the darkness and cold, and emerge, emaciated, for a season of hospital treatment.

This water supply for the cane fields of Kohala plantations is, as has been said, a clear development in the saving of waters which were going to waste in the ocean. What had been coursing through waste ravines and plunging in mad waterfalls over cliffs into the sea, required such an engineering feat as has been accomplished to utilize it for the extension of productive areas and insuring crops to their utmost capacity. The success of the undertaking has been brought about by the foresight and co-operation of Mr. and Mrs. Samuel Parker, J. F. McCrosson, John Hind and others, and M. M. O'Shaughnessy, the engineer-in-chief, who planned for its completion June 1st, and, contrary to the expectation of nearly all the contracting plantations, viz: Halawa, Kohala, Union Mill Co. and Hawi, despite the unexpected difficulties experienced in the work, the water was ready for delivery before they were ready to receive and fully utilize it. P. W. P. Bluett was the engineer in charge.

The opening of the ditch was made an occasion of considerable rejoicing and the event passed off with much eclat. Beside the interested and prominent people of the district, quite a party of Honoluluans attended by special trip of the Kinau to Mahukona for the occasion, at which speech making and prophetic utterances in keeping with the importance of the undertaking were indulged in by several of the party. The Acting Governor in his address said: "It marked a new industrial era for our people, and was an event that in some ways was the most remarkable that has yet occurred in these islands."

The close of the opening ceremonies was followed by a luau to the promoters and invited guests at the Kohala Club, while the Japanese laborers of the contractors were celebrating the event in like manner elsewhere.

The same company is prosecuting work on two other ditches in the Hamakua district, to cost \$1,000,000, one of which will be some twenty-three miles long over a comparatively easy section of country, at an estimated cost of \$200,000, while the other one of twenty-seven miles in length, it is figured, will cost \$800,000.

WAHIAWA DAM AND RESERVOIR.

Mention was made in last Annual that the Wahiawa dam was practically finished save the completing work on its tunnels. This culmination of the vast enterprise (an outcome of the ditch project given in the Annual for 1903, page 73), took place in February, 1906, and from the press accounts published at the time the following particulars are gleaned:

The dam is located in the Kaukonahua gulch, just below the junction of the North and South branches, and forms a winding lake extending for seven miles through the fields of the Wahiawa colony, and has been constructed to conserve the storm waters of the section of the Koolau range of mountains at its head.

It is described as the highest dam and the largest reservoir in the Territory, and at a much less expenditure of money, comparatively, than any other water development project in the islands.

Briefly, the statistics of the construction of the dam are as follows:

One hundred and thirty-six feet high.

Four hundred and sixty-one feet long.

Five hundred and eighty feet thick at base.

Twenty-six thousand cubic yards of stone backing.

One hundred and forty-one thousand cubic yards of earth filling, to form

A reservoir seven miles long with a capacity of two and a half billion gallons, at a

Cost of three hundred thousand dollars.

The dam will collect the drainage of eight thousand acres of mountain jungle, an area which is drenched by rains or refreshed by showers almost daily. The water output of the dam will naturally depend upon the weather, but the annual rainfall on the area of supply is estimated at ten billions of gallons, or four times the cubic contents of the reservoir.

It is six years since the preliminary work was begun, and it has taken the past two years of continuous work to construct and complete it.

The Water Company was formed by the Waialua Agricultural Company and Wahiawa colonists, the former owning eighty-two per cent. of its stock. The project was engineered to a successful issue largely through the labors of L. G. Kellogg, manager of the company; H. C. Kellogg, C. E., who prepared the plans and superintended its construction, and E. D. Tenney, president of the Water Company and of the Waialua Company, and W. W. Goodale, manager of the latter company, which has financed the enterprise.

The Wahiawa reservoir doubles the area of cane land of the Waialua plantation. The outlet of the reservoir extends through four miles of ditch and tunnel until it issues onto the lands at an elevation of 730 feet above sea level, or 180 feet higher than present cultivated fields. This brings 12,000 acres of cane land under a gravity flow of water, thus doubling the area without increasing the pumping plant, and places Waialua plantation in the 30,000 ton or more annual output class.

The dam lies twenty-two miles from Honolulu and eight from Waialua, at an elevation of about 1000 feet, and is connected with both places by good roads—the popular automobile run of the Territory—and since July last the extension of the Oahu Railroad to Wahiawa gives it another connection with the metropolis, of easy access.

Incidental to the main enterprise has been the construction of a ditch system through and above the Wahiawa colony, four miles of main ditch and eight miles of laterals having been extended back into the heart of the mountain, requiring thirty-eight tunnels being driven to accommodate it. During the construction of the dam the ditch water was used for sluicing earth into the dam. It now supplies water to the colony and will be used for power purposes, the surplus running into the reservoir.

This great reservoir and its ditch system not only conserves water which has hitherto gone to waste, for the irrigation of thousands of acres of land heretofore useless for agricultural purposes, but it will incidentally furnish produce water for a large amount of electric power, the establishment of a power plant at the exit of the water from the reservoir being already projected, where a turbine wheel and dynamo will be installed as a natural outcome of the water development of Wahiawa.

OTHER PROJECTS.

Koloa Plantation, Kauai, completed at the close of last year a reservoir of 370 acres in area for the conservation of winter rains, to hold nearly one and a half billion gallons, the entire work not exceeding \$25,000.

Kekaha Plantation, Kauai, has secured for a term of years from Gay & Robinson certain rights to water from the Waimea river, which they are bringing out for the irrigation of their cane fields from high sources by the construction of ditches, much of which has been blasted out of solid rock in its course. J. S. Malony is the engineer in charge, and satisfactory progress has been made during the year.

Wailuku Plantation work on the tunnels and ditches in development of the water supply for its fields, from the Iao and Waikapu valleys, Maui, is being pushed steadily forward.

"BULLY" HAYES IN HAWAII.

BY ARTHUR JOHNSTONE.

SINCE Bully Hayes touched here first in the fifties and has long been dead, he will be remembered by the oldest residents only. Yet there was that in the man and his acts which is worth preserving, and this brief record of his early career in the North Pacific seems due to the life and memory of the urbanest scoundrel that ever sailed a sea on evil deeds intent. But when the Editor of the *Annual* asked me for a brief sketch of the coming of this gentlemanly buccaneer of the last century, he hung a condition on me, namely, that I should stick to fact nor venture nigh romance. His prudential rider compels the belief that he, too, has caught glimpses of the dream-faces which he knew would be peering at me, ere long, from every angle of the pirate's career.

Yet even in a sketch I find difficulties similar to those which doubtless have prevented to date a complete biography of the man. There are, for instance, lapses and unfilled gaps in his life, during which, like an unsavory politician, our pirate disappears from the scene to his advantage, if to public disappointment. Or again, there arise questions involving the moral quality in his actions, which were best ignored until the commercial and social worlds are better agreed over the substance of practical morality.

But even as the facts stand—repulsive in most, reprehensible in all—I still find something to commend in Captain Hayes. For example, his chivalrous—nay, honorable—acts at times, his constancy in friendship, his uniform kindness to animals and his love for pets, are traits which contrast strangely, even grotesquely, with the pitiless dastardly deeds he committed on his kind afloat and ashore. As is usual in dealing with evil, I find he has been credited with acts and crimes which cannot be admitted to the record without introducing patent contradictions. For this reason, only what is known or may be deduced from his career with-

out chance of error, will be used in this instance. To these facts and conclusions I shall add only such comments as are suggested by our common humanity or the promptings of charity.

I find that Captain Hayes was born in the year 1827, at Cleveland, Ohio, (then a straggling village of less than a thousand souls), where his father is said to have kept either a tavern or an ordinary grog-shop—it matters not which. Yet from this it has been claimed that Hayes was not of respectable parentage. The assumption seems gratuitous, since in the early Western days a vendor of liquors was often a respectable man and good citizen in spite of his business, just as today we may find a Lord Mayor, or a Judge on the Bench, disreputable despite elevation. Again it has been alleged he was a man of *aliases*. This is not borne out by the facts. His changes I find were confined to, "Captain Henry Hayes," "Captain William H. Hayes," and "Captain W. H. Hayston," as he was called throughout the South Pacific and officially announced in the reports of the British Admiralty for the years 1874-5. To this list a judicial biographer will not hesitate to add his well-known nicknames of "Bully" Hayes and "Bully" Hayston, without fear of establishing an *alias* in fact.

Of his boyhood we have no direct word, but there is ground for the assumption that he grew up after the free and easy manner of frontier life, which develops more good citizens than of the reckless desperadoes we hear much about. In fact, it has been stated in print that young Hayes was one of the latter who began his career at the age of five-and-twenty by stealing a neighbour's horses, but fleeing from justice through a flaw in the indictment ere another could issue. Yet the one probable statement in the account referred to is, that in youth he had acquired a knowledge of sea-faring life, and, later on, had married and settled at Cleveland.

It is at this point that his biography begins to connect with facts, and we are assured by one who knew him, best of all, in the Pacific, how he owed his first break with society, and his subsequent evil career, to his first love and disappointment in life. The details of the affair are lacking, but it is within the limits of a fair probability, that next the love of money the love

of a woman alone shall serve to carry a man of Hayes' fibre and intelligence through a quarter of a century of dishonor to a premature and disgraceful death. It is certain, then, that young Hayes, or Hayston, received his education at Norfolk, Virginia, and later was appointed to a cadetship in the United States Revenue Service, where he served with honor and promotion. Subsequently he resigned and became Captain of one of the Great Lake steamers, but afterwards—about the year 1854 or 1855—he joined the U. S. Navy, where he is reported to have served with credit under Admiral Farragut. But again he left the service, this time it is said because of a feud which arose between him and Captain Corroll, whose hatred of Hayes was so great that when he brought the Confederate Cruiser *Shenandoah* into the Pacific, it is said that he sought for him in order to settle accounts.

It was near the middle fifties when Captain Hayes first appeared in the Pacific, but he did not reach Hawaii until in the fall of 1858, in the bark *Orestes*. His first questionable enterprise here, was the fitting out at San Francisco of the bark *Otranto* for the China trade. At that time the route to California lay by the Isthmus of Panama, and the trip took from thirty to sixty days as steamer connections happened. A voyage of the kind was quite to the hand of one awaiting to tempt his fate with a scheme. Crossed in love, embittered by his quarrel with a brother officer which finally drove him from the navy, it is not unlikely that ere he sailed from New York for the last time, he had his mind made up to the career of a freebooter in the romantic island world of the Pacific. But even here his fatal weakness—his passion for women—clung to him, and we find that he brought a "wife," as well as a male confederate, with him.

During the run to Panama it seems certain that he used in earnest the magnetic personal influence by which he afterwards controlled men and women wherever his lot fell. Thus it seems that even at the threshold of life he demonstrated he had in him the making of as plausible a scoundrel of his kind as any age has produced; and, as we now know, he re-enforced his purposes with a knowledge of human nature so keen and incisive, that his

judgment was always ready, and was almost unerring in moments of danger. I believe he was never quite trapped—though often near it—until Death, in an unexpected moment, put his finger to the gin.

His first venture in crime was typical of much to follow. Ere they reached San Francisco he had so hypnotized a fellow-passenger—it seems he was a gentleman of means ready for an investment—that he agreed to establish Hayes' "wife" (who afterwards remained there) in the liquor business, which, it seems, was quite to her taste. But to leave his "wife" in a convenient establishment at a port of return was a part only of his plan. In the end his scheme was brought to fulfilment by the friendly capitalist fitting out a ship for the China trade; and it was here our amateur pirate found it necessary to bolster his doings with fraud and deceit. Nay, he did not balk at introducing a confederate, who passed for a wealthy merchant and deliberately magnified the profits to follow a voyage to the coast of China. The end of the matter was that the bark *Otranto* was bought and fitted out in costly style—a luxurious habit that he followed throughout his wanderings in the Fabled Sea. It was not long afterwards that the bark sailed down the West with Hayes as Master, which was the last the owner ever saw of his ship.

From this out we have to deal with the fledged pirate and buccaneer. For some time Hayes sailed the *Otranto* between southern China ports, raising money wherever he might on bottomry bonds. In due course the vessel was seized, but he replaced her with the bark *J. Bradley, Jr.*, paid for out of money in hand. Then he repeated the same money-raising scheme, and soon after disappeared to turn up at Shanghai in the North. There he bought large amounts of clothing for himself and crew, which was promptly delivered, and, as usual, the merchant-tailor came aboard on sailing-day for his money. He was most politely received, but our rascal begged that he would be seated until the ship was under weigh and there was leisure to go below to fetch the gold. However, when the vessel neared the mouth of the river with the amiable Captain still as busy as any working-bee—never before had ship been so conned while under the

pilot's care—the tailor grows suspicious and demands his money with a vim there is no mistaking.

"Ah, yes; the money!" says Captain Hayes bland and smiling: "But you see, Sir, it is inconvenient that I should pay you now. I shall return shortly and settle the account, but at this moment I am going to sea, so you must either return at once in your boat, or sail with me."

Not long after that the bark *J. Bradley, Jr.*, appeared on the south Australian coast, where, after landing at Adelaide, Hayes had soon hatched a scheme with a runagate sea-captain to defraud the owners of a ship of £4000 which both rascals swore had been borrowed of the wily Hays on a bottomry bond. But this time things went wrong, the Court gave adverse judgment, and Hayes who, confident of winning, had sold his own vessel to pay legal and other expenses, now found himself penniless. Undaunted, he at once paid court to and married an estimable woman of Adelaide, with whom he went to Melbourne, where he soon sold some miners shares in a certain vessel that he had ceased to own, and, his good luck continuing, shortly after he took command of the bark *Orestes*, bound for British Columbia.

On the way to Vancouver's Island (this was in the summer of 1858) Hayes brought the bark into the port of Honolulu, where she lay for some six weeks. Already there was trouble on the ship, with frequent disputes between the Captain and his passengers. For example, while in Australia he had borrowed £400 from one—all the money the man had in the world—under pretext of investing it in liquors to be sold, for their joint profit, to the steerage during the voyage. But the urbane Master in the meantime had quietly pocketed the pounds sterling and his unfortunate dupe lost in the end both his capital and the expected profits.

But at Honolulu Fortune again waved her wand and mischance seized the bold buccaneer by a handy buttonhole. His Australian wife—the record calls her, "A lady of interesting demeanor and irreproachable character"—after a too brief honeymoon was granted a legal separation on the grounds of brutal treatment. But this was not the blow that killed since a pirate might easily get him another wife, but the loss of a ship which he intended to steal

was a more serious matter. Yet even by this time the Supercargo of the *Orestes* and special agent of the owners had wind of Hayes' dishonesty, and about the same time discovered there was a conspiracy afoot to seize both ship and cargo. At this point the Supercargo, Mr. Clement, exercised his legal authority by removing Hayes from the command of the vessel. †

Here the aplomb of the rascal commands our admiration despite condemnation of his acts. Deserted by his wife, without friends, and with worthless drafts menacing from a dozen business houses, he coolly determined to return to San Francisco where he was wanted for piracy, but where he was now forced to refit for contemplated marauds throughout the Island World.

It was not long, then, after the *Orestes* sailed before he left Honolulu in the *Adelaide*, and those unacquainted with the blandishments of the handsome buccaneer expressed surprise when his wife took passage on the same vessel. It was given out that she intended to join friends in California, but this she failed to do, and ere the blue gold-coast arose out of the sea, he again had won her to his bed and board with a fervor that soon withstood the severest test. In truth it was but a few days after landing that he had the misfortune, while walking with his Adelaide wife, to meet the handy "wife" he had left there in the liquor trade. As might be expected there was a scene which ended, however, in the San Francisco woman relinquishing her claim on his promise to pay her several thousand dollars. The Adelaide wife must have loved him passing well to have stood that.

But misfortune was still rampant and led our pirate directly to the owner of the stolen bark *Otranto*; but even at this moment of supreme danger you will be pleased to hear how he rose to the occasion with logic mailed at all points to prove how it were far better that the owner should take the several thousand dollars which were then due and would soon be paid by the owners of the ship *Orestes*, than to arrest him for piracy and get nothing. And it must here be recorded that although once bit, the owner of the *Otranto* was so persuaded by the plausible theory of half a loaf that he soon saw the last of Hayes and got nothing.

Out of present difficulties Hayes leisurely prepared for another act of barratry. He found at hand the brig *Ellenita* of the coasting fleet. Buying her it was not long ere he had her repaired and fitted for sea in the usual way—on credit. A local newspaper writer slurred him for, “a smart Jeremmy Diddler,” which shows how the rogue, as well as the statesman, may find his purposes underestimated to his future advantage. In any event Hayes held his own counsel and advertised quick dispatch to Australia, offering freight and passage at reasonable rates; and, as there were few opportunities of sea-passage in those days, the bait took.

Having paid down \$500 in cash to hold the vessel—money which another account says he had borrowed in part or wholly of the Rev. Dr. Damon in Honolulu—Hayes managed so well that he got further credit to the amount of several thousands of dollars, for outfitting and current expenses. When all was done in order, if not quite decently, he sent his “wife” out of town on a jaunt the day before he slipped his cable and to sea in the night, without pilot or the formality of clearing at the custom house. This happened on or about July 15, 1859.

To show how aptly he fitted the title of, “A Consummate Scoundrel,” which was fixed upon him in Honolulu shortly after that, it shall suffice to point out that he bought all of his stores for a long voyage in suburban shops, thus removing chance accidents from the vicinity of the vessel, and from the gossip of the waterfront. By a slight effort of the imagination we may realize in thought, if not reproduce verbatim, the plausible explanations made to his dupes of the lucky chance cast through his hand at their very doors. But this was not the worst. Before sailing he is said to have bought on credit some \$2000 worth of jewelry, and to have taken in hand over \$6000 in gold coin to be held in safe-keeping either for passengers, or in prepayments on freight. Add to this his heartless act of taking to sea the wife and children of a passenger he had robbed and purposely left behind, and it will be seen that his career began as it finally ended, in a scoundrelly record.

Avoiding Honolulu, where his return (after the affair of the

Orestes) might fetch suspicion in his wake, he touched in about two months after sailing, at Kahului, Maui, on September 15, 1859—ostensibly to buy fresh provisions. But Sheriff Treadway soon got inkling of goods to be smuggled ashore, and hurried over the mountain from Lahaina. Three days later, when Hayes was ashore buying fresh meat and live stock for an alleged voyage to New Caledonia, he found cause to arrest him for violating the revenue laws by failing to enter at the custom house. In a moment our bland pirate was overflowing with apologies, deftly putting the blame on his first officer, who—he indignantly announced—had told him there were no customs regulations requiring a formal entry. All this, however, failed to move the Sheriff and give Hayes a chance of escape, so he changed his tack. Ah! yes; the Sheriff was quite right—he saw that now—of course he could not do otherwise than his duty; yes, he would go with him to Lahaina where the little mistake might be straightened without further loss of time.

It was then that the Sheriff of Maui did the foolish thing.

One account says that he went aboard the *Ellenita* to allow the Buccaneer to give the necessary orders for bringing the vessel around to Lahaina. Another account says the Captain lured him aboard with an invitation to dine (good dinners and hail fellowship being scarce things on the beach at that time), adding the assurance that they would return directly after for the trip overland. But once aboard Hayes found little difficulty in detaining him on a variety of pretexts until it was too late to venture ashore in the dark—"Yet," says the genial pirate, "it will make no difference in the world whether we lie here or ashore, since (in either case) the brig will reach Lahaina before us."

The next morning they were up betimes, but the debonaire Captain had changed his mind, telling the Sheriff (we will suppose with a smile), that he intended going to sea at once. Not having force at hand the officer of the law was obliged to take to his boat and return without his prisoner. May we not all imagine Sheriff Treadway's feelings, and sympathize with him in memory, as he stood again on the strand of Kahului, "subjected to the mortification of seeing the *Ellenita* squaring away before a fresh

wind?" At this point the local chronicler covers several sheets with guesses over the destination of the *Ellenita*, but after mentioning all the probable ports on either side of the Pacific, neglected to consider the possibility of shipwreck, which is said to have occurred at Wallace's (Wallis'?) Island soon after. But there Hayes managed so well as to get his crew safely ashore on a raft, while he took the remaining boat and the passengers and sailed for Samoa to fetch aid.

It was not until December, 1876, that he again touched at Hawaii, and for the last time. Avoiding the ports where he was known, he brought the schooner-yacht *Lotus* (which he is charged with taking from the Bay of San Francisco) quietly into the remote port of Kawaihae that he might provision her for a longer cruise. This was in all probability his first piratical venture since the loss of the famous brig *Leonora* at Strong's Island, and his escape therefrom. But while the *Lotus* lay at Kawaihae there is no record of his having played any of his Pan's deviltries on the simple folk of that barren countryside, and ere long he sailed into the South. It was the beginning of his last cruise in the Pacific. But ere the end is reached it may be well to form a picture of the man in mind, and to briefly recount the more salient points of his career among the Islands of the South Seas. This much will be needed for a fuller understanding of the catastrophe which followed his departure from Hawaii.

In the man himself there is much to admire, if more to condemn. But it is a fact not to be disputed now that the blackest of charges and most persistent gossip have so misrepresented or enlarged his crimes and misdemeanors, that many probably shall find, as the tardy facts of his life appear, reason to modify judgment to more nearly agree with truth and justice. In some instances, I am sorry to say, this gossip has had a deliberate literary air. It has been declared, for example, that Hayes was bald-headed. But one who sailed with him in the *Leonora*, assures us he was not. Another author asks us to believe he had but one ear. A third carelessly tells us in the face of certainty that, "Hayes was a man of little education and of little talent except for rascality." But the extreme is reached in a quasi-biographical

note which insinuates a charge of cowardice against him. Think of that! After this manner our ideal pirate of ambrosial locks, of dancing blue eyes, with sabre-cut from ear to temple bespeaking the hero of his trade, has been pulled piecemeal by relentless gabble until naught save a devilish human scarecrow greets our expectant eyes. By a similar process the devils of the picture-book have had their genesis.

Let us look at the buccaneer as he appeared to his companions when in the prime of life, and but a few swift months before his death. Over six feet in height, with the chest measurement of a giant, and fearless to the edge of temerity, he would take his life in his hand on any chance occasion, even facing great odds alone and unarmed. Mr. Hilary Telfer, who was with him as guest and supercargo aboard the brig *Leonora*, declares that he was, "one of the most remarkably handsome men about this time (1876) that I have ever seen. His hair fell in clusters across his forehead above laughing eyes of the brightest blue; his nose was a bold aquiline; a well-cut, full-lipped mouth that could set like Fate, was covered by a large moustache. A Vandyke beard completed the *tout ensemble* of a visage which, once seen, was rarely forgotten by friend or foe."*

From the same source we learn that Hayes was a fascinating companion, who sang in fine voice the songs of the German classical composers, was an accomplished performer on piano and violin, and spoke at least four languages (besides various Polynesian dialects) with much fluency. On the other part he is credited with displaying an ungovernable temper when aroused by the treachery of a companion, or by the meanness or cowardice of another; and we are assured by his desultory biographer, that during an extended acquaintance and companionship, he had "never once witnessed an act of deliberate cruelty at his hands." Let us hope this is the truth.

But in the main Mr. Telfer's description of this almost unique pirate, tallies with the facts as sifted to the present. And this was he who out of the sea-born sunset sailed,

"With a Yo and a Ho, from a band of Threescore men!"

* "A Modern Buccaneer," p. 15 (Macmillan & Co., New York and London).

to end in shipwreck and disaster when Fate snipped the thread and Death at last held up his finger. But ere that (and with little effort) we may follow him in imagination as he crosses and recrosses the Pacific, leaving comedy, melodrama, tragedy—or all—in his fleet brig's wake. Such, then, was this picaresque rascal—a combination of silken gentleman and human tiger; at times unconscionably cruel, ferocious, bloody—a being of extremes—the puppet of circumstances, the victim of ungovernable moods—one who foolishly sought at all points to be avenged on Life's stings and thwartings by leaving a trail of crime among Utopian Islands. And in such dishonorable habit he came to the checkered life of the freebooter, if not quite the "consummate scoundrel," that he has been called.

With the loss of the *Ellenita* he disappeared for a time to turn up at Batavia where he soon fell into trouble with the East India Company, but in the end got of them a large amount of money ere he would unlade the cargo shipped under charter. He next appeared off Port Phillip with a cargo of coolies, a flying the flag of distress. There was a premium of £10 per head to be paid. When assistance came they found the crew ostensibly pumping clear water—but it was from the watercasks broached for the purpose. Then the pirate cried: "For the sake of God, men, save my passengers first and then fetch help! Until you return we will keep the vessel afloat—but lose no time!" That was the last the good sea-Samaritans saw of Bully Hayes for the time being, for ere they could return he had up stick and away, leaving the customs to collect of whom it concerned. For a time he again dropt out of sight, or only turned up unexpectedly at times at Tahiti and other outlying islands.

It must have been about this time that he and Ben Pease (whose life Hayes had saved when he was starving in Hongkong) entered into their infamous contract to make the Pacific—from the China Sea to the Dangerous Archipelago—a common hunting ground. And ere long Pease was able to repay his friend in crime (whom he afterwards betrayed and deserted, however), by rescuing him from arrest under the British Consular Agent at Upola. By an artifice Hayes got aboard Peases' vessel, which happened to enter port

just in the nick o' time, and the brig *Leonora* then sailed away. At this point Bully Hayes began an extended cruise which is interwoven with both history and romance throughout the South Seas. The comings and flittings of that fleet vessel were now many. In her he established trading stations as a base for further enterprises, robbed plantations—especially those of Germans, stole trading-schooners, committed maroonings, pestered the mission stations, abused the confidences of every port in the Pacific, and swindled merchants innumerable; and during this time he eluded for years the American and British warships which were searching for him. Once, indeed, the U. S. S. *Naragansett* picked him up in Samoa, but evidence failed and it all ended in entertainments exchanged between the officers and the dashing, congenial pirate, whom either fear or love—or both—guarded securely in the island world. From what is known there must have been in those days some idyllic cruises from the rogue's point of view. But there is little doubt they were somewhat ruthless, and at times a bit bloody and murderous; for are we not informed on certain authority that the *Leonora* carried several guns, with a motley crew of from thirty to threescore as graceless rascals as ever leapt to crime? Then there was that bulkhead, "loop-holed for rifles, so that if any disturbance took place in the forehold, which was sometimes filled with kanaka laborers, the rebels could be shot down with ease and accuracy."

At a stroke is here shown both the moral and physical fibre of the man with whom we are dealing. And yet there is another side to his character which we may not improperly call the heroic. A perusal of his exploits will bring this definitely to the front, until it shall linger with us like some grotesque but very real happening in life, found quite as often in history as in fiction.

Throughout a career filled with reckless adventures which alternated with deeds of violence—nay, even with murder by single hand, or, as some allege, done in job-lots on the spur of occasion—we still find the masterful and heroic cropping out of the man like gold from among the baser sorts. Inched, as it were, into the very waist of ignominious action, this Captain and born leader of men at times astonishes us with the tarnished luster of his antique heroism. But imagination is the deft conjurer at whose touch

we again see him at Hokitika, amid sinking ships, conning the little *Rona* in and out of that treacherous harbor; we are again with him when he stood high in the Imperial Chinese service, until finally ruined by the ill advice of the notorious Ben Pease, yet twice saving that scoundrel's life, once from starvation, and once again rescuing him (at the risk of his own life) from the gunboat where he was justly imprisoned. Or for months we sail with him on that almost continuous cruise of the *Leonora*, at times fleeing from island to island with a price on his head; at others dominating a great marine circle by the terror of, "arms and the man," after the manner of the adventurers of old.

But fate followed swiftly now, and the beginning of the end soon after that came in ship-wreck and disaster in the fatal bight at Strong's Island, called a harbor after the South-Sea habit, but without courtesy. Yet the catastrophe was the type on a smaller scale of the great Samoan tragedy where, "navies were stranded," in March, 1889, and so graphically described by Stevenson in "The Foot-Note to History." Then followed his arrest with the appearance of H. M. S. *Rosario*, but in turn came his release by the diplomatic British commander who allowed his dangerous prisoner to quietly escape while ashore. Next began the Buccaneer's Ulysses-like wanderings in an open boat, and whose trials and hardships seemed to bring out in a marked degree both the heroism and depravity of this remarkable being. But on searching his case I greatly fear that his necessities caused him for a time at least, to wear a cloak of hypocrisy and dissimulation most unbecoming in one whom nature had turned for a manlier course. At this point, indeed, Bully Hayes seems for the time to have deserted his courage to skulk among the islands, first, as a convert to the protestant, next, to the catholic religion. To those knowing the man it will be needless to say that he befooled his dupes of both sects to the top of his bent, until with his life in his hand he fled at last from the Island of Guam to the Golden Gate whence shortly sailed again for the South Seas in the yacht *Lotus* as mentioned before.

We have by good fortune, through Dr. Ingolls, the last victim of his misdemeanors in the Pacific, an authentic account of the

Buccaneer's death. By him we are informed that after the *Lotus* left Kawaihae, Hawaii, on or about January 1, 1877, she soon reached Samoa. There Hayes persuaded the doctor to sail with him in order to visit and treat one of the native kings in the Westward Islands. To gain his consent he was promised a fee of \$2000, half of which was to be paid shortly; but when they arrived at Jaluit the doctor was set ashore with his traps, under the threat that should he make a noise over his treatment he would succeed in getting his bones broken. But while the schooner lay in port a Norwegian sailor deserted. He was soon secured, however, through a reward and triced up to the mainmast and soundly flogged. This affair is said to have cost the Buccaneer his life.

The *Lotus* left Jaluit on March 31, 1877, but returned in less than a month. It was then learnt that shortly after sailing Hayes had had another altercation with the Norwegian sailor, and again had punished him severely, if not savagely; but on the fellow's continued resistance it is said (yet there is some uncertainty at this point) that Hayes went into the cabin for a pistol avowedly to shoot the Norwegian with. In any event (so reads the testimony), "the sailor took the broom-crutch in his hand (a heavy piece of iron), and when Hayes' head appeared above the companionway, the man struck him fairly and stove in the top of his skull."

That was the last of Bully Hayes, but as the years flit Romance is deftly weaving her web about his name, and shall at last pattern the woof to some South-Sea mosaic of splendid unrealities.

WILL HAWAII REDEEM HERSELF?

HAWAII is to be pitied at the evidence throughout islands of the evils resulting from the liquor bill passed by the last legislature, which evils have become so flagrant that the more respectable men in the trade join with the temperance workers and other folk in demand for remedy, the former in protection of self-interest, the latter in protection of humanity and common decency.

The prevalence of drunkenness in this city during the recent

campaign was freely dealt with in the daily press. It was a object lesson that furnished text to several aspirants for legislative honors, and gave the Anti-Saloon League occasion to have the various candidates express themselves on this liquor question. A few had the courage to do so, but the majority shielded themselves under the rule or rules of the Central Committee directing them on important subjects.

It was shown in the last Annual how this pernicious bill was rushed through without reference to a committee toward the latter part of the session and became law with the governor's approval. Someone, feeling sure of his ground, engineered the bill through with the aid and support of members the public had a right to expect higher principles in, and better judgment from, than to be trapped by such a measure, whether governmental or party, under the excuse of raising revenue, when it is so directly at the cost of the Territory's well-being. It is hard to conceive any love of country, or regard for the declining Hawaiian race, having place in the heart of a man—law maker or other—that would deliberately aid to dispoil them of manhood and wage-earning power; regard for family or home ties, and hasten their impoverishment, for that is just what it means to this people.

Under all the circumstances it is doubtful if the Republican party, who profess such regard for the Hawaiians, and has done so much for Hawaii's progress, can take pride in this, their law of degradation, for it is to be borne in mind that the House at its last session was entirely Republican, save one lone Home Ruler, and consisted of 13 Hawaiians, 6 part Hawaiians and 1 white men.

In this past year no one subject has been more frequently dealt with in the local papers, editorially and otherwise in appeal, reasoning, exposing and protest against conditions resulting from the working of this law, not only in the centers of population, but in lonely out-districts where at all points it was demoralizing and impoverishing the people, particularly the Hawaiians. In these various articles referred to it is a significant fact that no reply to any one of them has appeared from the father, or supporters, or

the bill in its defence, though there have been liquor dealers' denial of responsibility therein.

While not the bill that was known as the government's (which was House Bill No. 168), it was introduced by the same party, H. L. Holstein, member for Kohala, and came so close to its veto as to give ground for general public belief in their intimate relationship, and the speed with which it was railroaded through both the House and Senate indicates an organization of forces worthy a better cause.

By reference to the House Journal of 1905 for its record of proceedings on these two bills one cannot but be impressed with the unanimity of action thereon, especially considering the accepted favorable character of its membership. No "party whip" could have made it more so. Of all the members of the House in its action on them, in one or the other stage of proceedings, notwithstanding the petitions presented against them to safeguard the people, but two members had the courage of their convictions to vote consistently against them throughout; these were G. W. Mahikoa of Kauai, and M. K. Nakuina of Moiokei. All honor to them.

It would interest some readers to know how this railroading was accomplished and why men of known better principles were hypnotized to its support. The reason alleged for the undue haste was ascribed to the necessity of its reaching the executive in time for possible action in the event of another veto. The procedure, summarized, was as follows:

The veto message on Bill No. 168 is dated April 18th. Holstein introduced his second and amended liquor bill, No. 222, the afternoon of the day before, the 17th, under suspension of the rules, giving notice and introducing it simultaneously at that time so as to pass its first reading by title. At the evening session of the 18th, under suspension of the rules, it is read the second time, again by title and passed, but not referred to committee as is usual at this stage. The following evening, the 19th, its third reading is called for, and after but three amendments passed on a vote of 22 to 4.

The same speedy action must have been observed in the Senate,

for on the 24th it notifies the House of its passage of this House Bill No. 222 with certain amendments, which the House receives on the 25th but not concurring, a committee for Joint Conference is appointed. The Senate, notified, does likewise and the Joint Committee meet and agree on their differences the same day. On the 26th the House receives notice of the action of the Joint Committee, dated the 25th, and recommends the passage of the bill as amended. This was adopted by a vote of 25 to 2, three being absent. The bill then went to the Governor in due course, and received signature the same day.

Friends of the bill maintain it has some good features but in its working, these so-called commendable points are rendered nugatory in that in too many instances violations of the law are winked at by officials, as has been the complaint before the grand juries of each of the islands, and as may be seen from the following extracts from the reports of the District Magistrate of Honolulu.

In the report to the Treasurer on the offenders against the liquor laws—as required by the Act—for the six months ending December, 1905, 426 convictions were shown to have been reported by means of 121 separate reports in which 36 were twice convicted within the period and came under the habitual class. In consequence, ten cases of violations of the conditions of license were found rendering the parties liable to the revocation of their license on which, up to the close of said report, no action had been taken.

For 1906 up to November 12th the records show there have been 733 arrests for drunkenness. Of this number 169 have been released by the Sheriff or his Deputies, and 464 have been reported for trial. Of this number there have been reported to the Treasurer 406 convictions, the balance being stricken from the calendar, nolle prossed, or forfeited bail. Of the 406 thus reported, the number of convictions of each defendant have been as follows: First conviction, 315; second, 49; third, 14; fourth, 11; fifth, 7; sixth, 5; seventh, 3; and eighth, 2.

Subdivision 5 of Section 12 of Act 67 of the Session Laws of 1905 makes it a condition of the license of any saloonkeeper that

he shall not sell to any person twice convicted of drunkenness, and Section 40 of the same Act makes it a criminal offense so to do, with a penalty therefor in any sum not exceeding \$1000. It will be seen by the above figures that there have been 42 violations of the above sections. There have been no convictions for any breaches of these sections; the only two cases which have been commenced have been for two months last past from time to time postponed, and have not as yet come to trial.

All the above violations of the statute have been reported to the Treasurer. In each case where a prisoner has been brought up for more than a second offense, he has been examined by the Court as to where he obtained the liquor, the time and his companions.

If this is the spirit in which violations of the law are permitted at the seat of administration, how can it be otherwise in the out districts and on the other islands, some results of which the writer was eye witness of in a tour this past summer, and much more was learned of the demoralizing influences at work in all the districts ascribed as the result of this liquor bill, since it makes it possible for the saloon to invade every hamlet throughout the group, in spite of protest as experienced in Kona, Hawaii; Waimea, Kauai, and likely other places, the law having made mandatory the issuance of licenses and removed the executive discretionary power hitherto observed in such matters. The one exception that has come to our notice is that of Kalapana, Hawaii, where the village rose in objection to the proposed locating of a saloon.

In March last was published a condition of affairs which the Acting Governor admitted "was serious, for which the present liquor law is to blame." He was powerless to act in the matter. The Act made mandatory the issuance of licenses to applicants complying with the law and removed the executive's discretion.

At that time, the law being but eight months in force, over \$100,000 had been collected for licenses as against \$60,650 for the previous fiscal period of twelve months. Under the old law there were fewer dealers; all classes of license, except wholesale, paying about double the present rates, so that with the reduction

of cost of license, removal of restriction as to locality and discretionary power of the executive on applications, is it to be wondered that this destructive agency should get into unscrupulous hands and spread to all corners of the group to create strife and disorder.

During last summer the manager of one plantation on Hawaii had a strike on his hands because of the war he made on the drinking places in his vicinity, and in another instance one of the principal Sugar Agencies felt constrained to address the executive on the demoralizing influences in the neighborhood of one of their plantations through this same cause. Thus menacing our main industry.

Of the number of licenses issued up to March since the law went into effect, 105 of them were of the fifth class, of which 96 were for the sale of liquor at places that did not handle it before; most of these being country stores. In the discussion of the liquor law in the legislature it was maintained that there was need for a class of license for such places where travelers could obtain liquid refreshment, and it was for this class of place that the fifth class license was designed. This is the class that has been taken out by Chinese and Japanese all over the Territory and certain quarters of this city.

In May again the situation was freely dealt with by press and platform at which time there was prepared by the Civic Federation an appeal for the amendment of the present liquor law and enactment of a local option bill, that was distributed throughout the islands, to embrace the following changes:

First.—The abolition of all fifth class licenses.

Second.—Fourth class licenses to be \$1000 instead of \$500.

Third.—All applications for a license to be published in the precinct where it is to be exercised for four consecutive weeks before issuing the same.

Fourth.—Opponents of the granting of a license to be given the right to arbitrate the decision on same terms as the applicant.

Fifth.—Signers of petition for licenses to be restricted to real estate owners within the prescribed limits.

Sixth.—That saloons be not allowed within 400 feet of a church or school.

Seventh.—Licenses to be issued to citizens only.

This circular sought to influence voters to demand of candidates for election a pledge toward this needed reform, and its features of high license and restriction to citizens only are planks of the Retail Liquor Men's Association—provided they go together. A prominent member of that body and a Senator-elect for Honolulu, is on record as "utterly opposed to the Sunday selling and saloon-cafe business," the former being the natural outcome of which the cafe feature is but the excuse.

The present law will have had two years of its degrading work before amendments by the coming legislature can have effect. And surely the evils apparent throughout the Territory are sufficiently pronounced to demand at their hands unanimous action to undo the error of last session, and cast around the waning Hawaiian race all the safeguards possible, rather than multiply the opportunities for their temptation and ruin. And what will benefit them in this respect will benefit also a large army of unfortunates of our own race.

TRADITION OF THE WIZARD STONES KA-PAE-MAHU,

On the Waikiki Sea-Beach Premises of Hon. A. S. Cleghorn.

COURTESY OF JAS. H. BOYD.

THESE mid-Pacific isles have many legends attached to various localities, and mountains, rivers, lakes and places have their goblin and other storics of by-gone ages.

In Hawaii are many places which give ocular proof of the supernatural tales of the mythical beings who are credited with a personality equal in local lore to the celebrities of ancient Greek mythology, and the doings of the dreaded gods of Hawaii have been recounted amongst the Hawaiian people for successive generations. Of late the doings of a quartette of sorceres who have prestige amongst the mele singers and recounters of ancient

Hawaiian tales have been revived by the unearthing of long concealed monuments on the Waikiki beach premises of the late Princess Victoria Kaiulani, daughter of Princess Miriam Like-like and Governor Achibald Scott Cleghorn. These discovered relics of ancient days have brought out the tradition of their existence and to the following effect:

From the land of Moaulanuiakea (Tahiti) there came to Hawaii long before the reign of King Kakuhihewa, four soothsayers from the Court of the Tahitian King. Their names were: Kapaemahu, Kahaloa, Kapuni and Kinohi. They were received as became their station, and their tall stature, courteous ways and kindly manners, made them soon loved by the Hawaiian people. The attractiveness of their fine physique and kindly demeanor was overshadowed by their low, soft speech which endeared them to all with whom they came in contact. They were unsexed by nature, and their habits coincided with their feminine appearance, although manly in stature and general bearing. After a long tour of the islands this quartette of favorites of the gods settled at Ulukou, or Kou, Waikiki, near where the old time Maikai house stood, which location is within a few lots of the Moana Hotel.

The wizards or soothsayers proved to be adepts in the science of healing and many wonderful cures by the laying on of hands are reported to have been effected by them so that their fame spread all over this island (Oahu), as the ancients say, "from headland to headland." Their wisdom was shown by many acts which gave them fame among the people.

In course of time, knowing that their days amongst their Hawaiian friends were drawing to a close, they caused their desire for recognition for past services to be remembered in some tangible form, or manner, so that those who might come after could see the appreciation of those who had been succored and relieved of pain and suffering by their ministrations during their sojourn among them. As a most permanent reminder the wizards agreed amongst themselves that the people should be asked to erect four monumental tablets, two to be placed on the ground of their habitation and two at their usual bathing place in the

sea. They gave their decision to the people as a voice from the gods, and instructed that the stones be gathered from the vicinity of the historic "bell rock," at Kaimuki, on the Waialae road. The night of "Kane" was the time indicated for the commencement of the work of transportation and thousands responded to aid in the labor. Four large selected rocks, weighing several tons each, were taken to the beach lot at Ulukou, Waikiki, two of which were placed in the position occupied by their hut and the other two were placed in their bathing place in the sea. The Chief of the wizards, Kapaemahu, had his stone so named, and with incantations and ceremonies transferred his withcraft powers thereto, and sacrifice was offered of a lovely, virtuous young chiefess, and her body placed beneath the stone. Idols indicating the hermaphrodite sex of the wizards were also placed under each stone and tradition tells that the incantations, prayers and fastings lasted one full moon. Tradition further states—as is related in the old-time mele of that period—that, after the ceremonies which included the transfer of all their powers, by each of the wizards to the stones thus placed, that they vanished, and were seen no more, but the rocks having lately been discovered they have been exhumed from their bed of sand by direction of Governor Cleghorn and have been placed in position in the locality found, as tangible evidence of a Hawaiian tale.

DEVELOPMENT OF WAHIAWA.

BY W. B. THOMAS.

REFERENCE is so frequently made in the local papers to the success of Wahiawa in a general way that a few facts as to what has been done there in the past year may be of interest

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In March the great Wahiawa dam and storage reservoir was completed and water turned into the ditch to supply the upland cane fields of the Waialua Agricultural Co. It is built at the junction of the two branches of the Kaukonahua stream, about one and a half miles west of the railroad station at Wahiawa. These streams have their source in the Koolau moun-

tains and collect the drainage of about 8000 acres of mountain jungle, where it rains more or less almost every day in the year. The past summer has been an unusually dry one. Since the dam was completed there has not been a single heavy rain, but owing to the frequent showers in the mountains, from fifteen to thirty million gallons a day have passed through the gate to the cane-fields below. The dam's capacity is two and a half billion gallons, and the engineer estimated it would in average years fill four times a year. The cost of construction was about \$300,000. The water is sold by the company for one-third of a cent per hour for each miner's inch delivered, or approximately \$6.17 per million gallons. Measurement is made by an automatic register at the exit from the reservoir.

The water used on the Wahiawa lands does not come from the dam, but is supplied from ditches direct from the mountains.

The Water Company proposes to at once lay a ten-inch pipe from the outlet of the last tunnel at the base of the mountains down the Colony lands, to supply water under pressure for domestic purpose. This will be a great convenience, as it will enable every one to have every advantage of a city water supply. It is confidently hoped this improvement will be followed with the erection of an electric light plant to furnish power and light to the fruit canneries and residences.

The event of the most importance that has transpired during 1906 was the building by the Oahu Railway and Land Co. of a branch from its main line at Waipahu to Wahiawa. The first train passed over the road July 14th, and since then two trains per day each way have been run. The length of the branch is eleven miles, and has an average grade of three per cent. The cost to build it was about \$150,000, but that it will pay well is already settled beyond a doubt.

The pineapple industry has been largely expanded the past year and promises to continue to grow. There are two canneries here—the Hawaiian Pineapple Co. and the Hawaiian Islands Packing Co. Their combined output the past season was over 50,000 cases of two dozen cans each. Besides these the Tropic Fruit Co. packed a large quantity of pines in glass.

The most important transaction in the pineapple line that has taken place was the consolidation in November of the Hawaiian Fruit and Plant Co. and the Tropic Fruit Co. under the name of the Wahiawa Consolidated Pineapple Co., with a capital of \$400,000. The consolidated company owns 400 acres in fee and 1000 acres under lease. It is the intention to build a complete canning plant and to push the development of the company as fast as possible.

RETROSPECT FOR 1906.

THE year drawing to a close has been a notable one for our island community in that questions of vital importance to public interests arose which called for considerate and concerted action; events occurred which appalled us by the magnitude of the disasters and drew forth our sympathy and aid, and though transpiring without our borders resulted in much derangement of island trade, thus plainly indicating the close business ties of relationship existing between these islands and San Francisco. This and an unprecedented series of mishaps to vessels engaged in our freight and passenger traffic has had a deleterious effect on tourist travel that was beginning to have a most promising outlook for Hawaii. Furthermore, the serious question of immigration and plantation labor is being dealt with which, it is hoped, will result in a more stable labor supply and overcome the difficulties arising from the restlessness of Japanese, that notwithstanding the advance over last year's wage, their exodus to the Coast, as last year, has far exceeded the arrivals from Japan in the same time.

THE RECENT CAMPAIGN.

There has been a full year's working of the County Act, and its defects experienced will doubtless be sought to be remedied by the incoming legislature. The extra expense this entails to tax-payers is nothing compared to the satisfaction felt by the average voter at the larger list of aspiring public servants that

now depend upon his ballot. For this reason our campaigns are longer and hotter, and no doubt more expensive than usual. Participants in the recent political campaign have realized it as the most strenuous one yet experienced here, not from the difference in party platforms, but in personalities rather than opposing planks.

In parts of the group a fusion of Democrats and Home Rulers was effected, but only on Hawaii did they carry the field against the Republican ticket for both legislature and county. Maui came out Republican by a narrow margin in some cases, while on Kauai, through some one's error, the Republican candidates had no opponents, except for delegate. On this island the battle centered on the shrievalty and the "machine" with the result that through undisguised disaffection at the machine method of downing candidates of known character for certain others, and the better organized Democratic party this year, the latter came off victors in the majority of county offices, but only one for legislative honors. Steps for a recount of Oahu ballots have been taken, and Maui threatens like action. The Civic Federation again did good service in directing intelligent voting, irrespective of party, and though derided by many its looked-for views respecting the various candidates was timely and effective in a large measure.

DELEGATION TO WASHINGTON.

Following the recommendation of the President in his message to Congress that three-fourths of the Federal revenues collected in Hawaii be set apart each year as a special fund to be expended by Congress for certain specific purposes within the Territory (as suggested by Governor Carter), a delegation of representative citizens was selected by the trustees of the Chamber of Commerce and directors of the Merchants' Association, which consisted of Messrs. W. O. Smith, M. P. Robinson, G. W. Smith, E. A. McInerny, J. R. Galt, D. H. Case and A. B. Loebenstein, which delegation left here January 20th for Washington to work in the interests of Hawaii for a refunding bill as above outlined, and had much to do in advo-

cacy of the measure with various officials, members of Congress and committees, in which work it was admitted by a prominent Senator that "No state in the Union could stand up against what Hawaii has had to endure in being deprived of such a large portion of her revenues." As a result the "refunding bill" creating a fund for public works in Hawaii, and setting aside 75% of the islands' custom dues and receipts from internal revenues for that purpose for the term of five years passed the Senate on May 23rd. It is hoped this will have favorable consideration in the House should its own bill on the subject for twenty years—as recommended by the President—fail in passage.

SAN FRANCISCO DISASTER.

The cable announcement of the terrible earthquake on the morning of April 18th followed by fire appalled this community at the calamity that had befallen our sister city, and anxiety fed upon itself for days as further information was as suddenly denied us through the dangers that beset the San Francisco cable office. In the suspense that followed wild fears intuitively pictured the disaster and suffering they were experiencing. And when after three days of vain effort to get a message through, even by way of Europe, cable communication was resumed, it saddened all hearts to learn that the series of earthquakes and successive days of conflagration that had early got beyond control of the fire department, through break of the water mains, was being fought with dynamite and had ruined the city far beyond the worst fears, with damages also in other cities of the State. Hawaii's sympathy responded quickly to the call for aid to the homeless and helpless multitude that thronged the parks. People of all races and creeds in our community joined with mercantile and fraternal societies in contributing, and special agents were sent from here to aid in its distribution.

Considering the population of the city and the area devastated, seven square miles, the loss of life was, fortunately, less than anticipated, and among the island people then visiting or

residing in the city no fatalities occurred, though one ex-Honolulan was hurt in San José. But San Francisco and these islands are so closely allied in business interests that this loss to her is a serious set back also to the commercial interests of this city and Territory.

Valparaiso, Chili, also met with a like disaster in a series of earthquakes which began August 16th, lasting several days, which demolished buildings throughout the city, followed by home fires. The business section of the city was in ruins and many people were killed and injured. Other outside cities and towns have been wholly or partially wrecked. Later advices report Valparaiso's loss at \$100,000,000 and the death roll at 3,000.

INTRODUCTION OF MOLOKANS.

Through the philanthropic efforts of Mr. Jas. B. Castle there arrived by the *China*, February 19th, 1906, a colony of the Molokan sect of Russians, from Los Angeles, Cal., comprising 110 men, women and children, for settlement on Kapaa lands of the Kealia Plantation, Kauai. The company was met at the vessel by the enthusiastic promoter of the colony scheme, and a delegation of the Hawaiian Board and others, and a cordial welcome was extended them. They went forward to their destination the same day, so were unable to participate in the planned welcome to have been given them by the ministers of the evangelical churches at Kawaiahae.

In March a spirit of disaffection was manifest in the colony when Mr. Castle, with Mr. J. Kotinsky as interpreter, visited them and helped to smooth out difficulties, largely of misunderstanding for a while, but before another month passed it became apparent that as workers in cane fields they were failures and their introduction was termed "an expensive error, from the fact that they fell far below the estimate furnished by those who were desirous for them to come on trial. They do not want to work as a community and was a failure here as they had been elsewhere." A delegation waited on Secretary Atkinson to suggest a new plan, viz.: to form a settlement

association on Kapaa lands, including pasture lands, on the same acreage basis to each family as under their agreement, the community idea having absolutely failed.

In May a new scheme whereby they were to have their lands in severalty, and to be given a chance to prove their worth as laborers on the individual system was mapped out, to the expressed satisfaction of all parties, but before long thirty-four of them came up from Kauai and had the audacity to request Secretary Atkinson for funds to return them to California as they were through with Hawaii for all time. The balance, after a short trial as individual laborers, continuously dissatisfied, severed all relations with plantation and government and returned to Honolulu en route for California, and took departure August 1st.

IMMIGRATION MATTERS.

The movement to obtain immigrants from the Azores has fortunately met with signal success at all points. First, the coöperation of the Federal Government; second, the selection of E. R. Stackable as special agent in the work, with E. A. Frazer as his assistant, and third, the favorable reception of the proposition by the Portuguese people of those islands, so that the steamship *Suveric* was chartered in London and proceeded to Madeira and Funchal to take on board the first company of this revived Portuguese emigration to Hawaii, leaving the latter port with 1325 souls, comprising 408 men, 301 women and 616 children, arriving here December 1st all well.

So interested is the authorities at Washington in this movement that Commissioner Sargent visits the islands to personally see to their reception and allotments of land as promised.

Mr. Frazer remains in the Azores for awhile in furtherance of the work there, while Mr. Stackable visits Italy to look into the possibility of that field also as a source of labor supply.

The step toward securing immigration from the Philippines, opened up by the Board of Immigration as in the above case.

through the labors of special agent A. F. Judd, after many difficulties met with has been so far successful as to promise the arrival shortly of 15 families of Filipinos.

Recent advices from Japan point to a change in their emigration policy whereby the established emigration companies profess ability to furnish laborers for these islands at the rate of 20,000 per annum.

FINANCIAL.

A new refunding loan of \$750,000 was negotiated in New York by Treasurer Campbell through Kountze Bros. the early part of the year, the sale of which realized \$735,937.50. The first \$100,000, less cost of transmission, was cabled here February 5th through Bishop & Co. and the second instalment of like amount was received the latter part of March. The transfer from New York gained in premium and interest sufficient to bring the loan total up to \$738,338.88.

Congress promises large expenditures for Hawaii (though holding up the Refunding bill), some \$765,000 being appropriated for the following objects, viz.: Fortifications, \$250,000; sites for same, \$200,000; public building site, \$150,000; filling in reef and Quarantine island, \$55,000; federal law library, \$10,000; Makapuu light house, \$60,000 and Honolulu light, \$40,000.

Since these figures were made public a press cable from Washington states that \$16,052,431 are required for projected fortifications at Honolulu; \$4,000,000 for its harbor improvements; \$344,000 for Pearl harbor, and \$276,100 for fortifications on Hawaii.

PUBLIC IMPROVEMENTS.

The amount of work under this head in progress throughout the islands under Federal, Territorial, County, or private direction show it to have been a year of material progress. The dredging of Honolulu harbor and its channel is completed so far as planned for the present, and excavations for the Alakea and Kinau slips finished, the material therefrom being used to fill in a large area of Kakaako and the flats in the vicinity of

the sewer pumping station and garbage crematory. The amount of material removed by the Federal dredging was a million and a half cubic yards.

Kahului harbor is being dredged to a depth of 32 feet, and a breakwater constructed 2,100 feet long, both of which are making satisfactory progress. The rock wall of the breakwater has almost reached its length though not yet all filled in. This work is being paid for by the Kahului Railroad Co. and will require an expenditure of about \$150,000.

A survey of Hilo harbor with relation to its proposed breakwater has been completed and the report forwarded to Washington.

Work on the Alakea slip and wharf buildings, as also government wharf No. 2, between Alakea and Kinau slips, is being pushed steadily forward. The contract on this wharf, which will be 610 feet long and 120 feet wide, was let to L. M. Whitehouse for \$88,888, to be finished next June. The Brewer wharf and shed is nearing completion, being hindered by shortage of roofing material from San Francisco.

The Archives Building, to have been completed in February, was not finished till six months later. It was thrown open for public inspection August 24th and the moving of the archives thereto began on the 27th.

Aala park has been provided with a neat band-stand, which was inaugurated by a concert March 17th by the enlarged band of forty-two performers. The band-stand in the Executive grounds has been practically rebuilt this last summer, its first real repairs since erection for Kalakaua's coronation.

Road and bridges have had special attention throughout the group, thus practically illustrating the benefits of County government.

RAILROAD EXTENSION.

As planned last year the Oahu Railway has constructed a new line of road to the Wahiawa colony, branching from the main line at Waipahu, and running a distance of 11 miles out onto the table land, passing near the big dam, and having its

terminus convenient for the productive concerns of the colony. The new road had its opening July 14th.

The new Koolau Railroad line began preliminary work early in the year through the windward district of this island, and is pushing its construction work from Kahuku towards Punaluu, passing en route the Hauula homesteads. At this writing about ten miles of the road is reported finishing. It will eventually connect at Kahuku with the O. R. & L. Co. system and extend to Heeia.

Encouraging prospects are reported of the railroad project through the Kona districts of Hawaii, looking to the development of its agricultural possibilities.

REAL ESTATE.

No activity has marked the real estate movements of the year. There have been a considerable number of quiet transactions of an improved tone, being more of the suburban lots for residence rather than for speculative purpose. That a better feeling pervades is evidenced by the increase in sales and reduction in foreclosures, as compared with 1905. A tract in the Makiki district was divided into lots recently and sold by the Commissioner of Public Lands at auction to the highest bidder with the result that they were bought in by one party for \$1.00 each over the upset figures (considered full value), with the view of parking same for the benefit of adjoining residence properties.

The important transaction of the year has been the sale of Sam'l Parker's half interest in the Parker Ranch on Hawaii, fee simple and lease, except the homestead, with its stock, etc., to Annie T. K. Parker for \$600,000.

About the only business property of the city changing hands has been the W. E. Foster two-story brick building and lot, on Fort street, to C. M. Cooke, Ltd., recently for \$19,000, and a 30-foot lot on Bethel street, adjoining the "Friend" building, purchased of the government by Bishop Trust Co. for \$11,650.

BUILDING NOTES.

While the building spirit through the year can not be termed

active there has nevertheless been considerable doing, and more would have been accomplished but for the set back through San Francisco's disaster in the loss of supplies at that point, and difficulty in getting freight through from elsewhere through various causes, added to which is advancing rates on material. But for this the construction of the Pacific Army Post at Kahauiki, consisting of twenty-seven buildings now approaching the finishing stages, would have been completed.

Of business structures the McCandless Building, of lava stone, at the corner of King and Bethel streets, four stories in height, will shortly be ready for its roofing. The two-story brick building of Fred Harrison, corner Fort and Beretania streets, is about ready for the internal woodwork. Its second floor will house the Knights of Pythias Lodges. A third story has been added to the Dimond building, King street, under a long lease on the second and third floors to the Order of Elks. Bishop & Co. have doubled their "Friend" building, on Bethel street, for their Trust Co. offices. Ground is broken at the corner of King and Alakea for an office building of two stories by Wm. McCandless. The Hotel Baths is a new concern erected on the lot adjoining the Y. M. C. A.

The King street residence of A. Frank Cooke has given place to a commodious two-story building for the Kaiulani Home for Girls, to which it has moved from the Hopper premises, and is reported to be in fine working order. It has capacity for 50 inmates and cost \$25,000.

The new spacious Howard mansion, at Makiki, formerly the Gilman premises, is making good progress and promises to be the most pretentious in this fine residence section. Nearer Punahou, adjoining Mr. Swanzy's, is being erected a new residence, the property of Mr. R. Ivers.

A new two-story building for F. L. Waldron, and several cottages for various parties have been completed in Manoa, and similar home structures have gone up in the Kaimuki section, of which that of A. F. Cooke is the most notable.

Award has been made to Lucas Bros. and ground broken for Oahu College buildings, two dormitories and a refectory,

as also the president's house to be erected above the new dormitories on Rocky Hill.

Kahului and Paia, on Maui, are enjoying a season of renovation and enlargement that indicates healthy and creditable progress. Hilo, Hawaii, is also sharing in the benefits of new structures.

BUSINESS CHANGES.

There seems to have been more than the usual number of changes among the established firms of Honolulu the past year, which point, possibly, to a modification of business activity. The principal ones are as follows:

The J. A. M. Johnson Co. closed out to the Hawaiian Office Specialty Co., the latter relinquishing their King street stand and moving into the Johnson quarters on Fort street.

F. E. Nichols disposes of his interest in the firm of Wall, Nichols Co. to H. D. Corbett, formerly of Tucson, Arizona.

Bishop & Co. organizes the Bishop Trust Co. to deal with all matters of a fiduciary character apart from their banking business.

The Kash stores, doing business heretofore in the Waverley block, with a branch at the corner of Fort and Hotel streets, remodels and enlarges the latter to better serve them, and discontinues their older stand.

Woods & Sheldon, dealers in sporting goods, closes out to the Pacific Hardware Co., who in turn are shortly afterward bought out by T. H. Davies & Co. and E. O. Hall & Son, who divide the stock between them, the latter firm increasing their capital from \$250,000 to \$300,000.

The Porter Furniture Co. disposes of its stock and good-will to J. Hopp & Co.

The Robt. Grieve Printing Co. retires from the field and boxes up and ships its plant to the Coast. Their long established stand has been moved into by the Mercantile Printing Co.

The Hobron Drug Co. has been purchased by Benson, Smith

& Co., the latter opening its wholesale drug department branch in the Arlington, on Hotel street.

The Raymond Meat markets (2) have been disposed of to the Metropolitan Meat Co.

The Elite Ice Cream Parlors went into bankruptcy and was closed out at auction, Alexander Young being the purchaser, who will open up shortly in the Young building, at the corner of Hotel and Bishop streets. Mr. Young is the purchaser also of the Moana Hotel and is conducting it in conjunction with the Young Hotel under one management.

Mr. Geo. W. Macfarlane bought in all rights in the Annex at Waikiki, and has enlarged and improved the favorite resort, re-opening it under the name of Honolulu Seaside Hotel.

The National Bank for Lahaina, with subscribed capital of \$25,000, opened for business April 2nd.

The long established importing and commission firm of F. A. Schaefer & Co. becomes this year a corporation.

Capt. A. H. Otis has disposed of his interest in the Honolulu Drug Co. to Messrs. R. B. Reedy and N. C. Finley, formerly with the Hobron concern.

Geo. P. Thielan, senior partner of the firm of Thielan & Williamson, stock brokers, closes out his interest to his partner and plans to settle in business on the coast.

FIRES.

While the city fires have been more frequent than serious the reverse is the case upon the other islands. The most notable of local occurrences was the Davies' warehouse fire of December last, the Skating Rink fire in March, three or four residences during summer, and a couple of Chinatown stores.

On February 3rd a serious fire broke out in the Onomea Mill, Hilo, which did serious damage, not only to the building and machinery destroyed on which \$135,000 insurance was paid, but in delay to the crop through necessary re-building. August 12th the Catholic church at Kalaupapa, Molokai, was entirely destroyed, loss placed at \$6,000. In August the Kekalia Mill had a cane blaze which swept over forty acres,

and in October a fire broke out at the Mill which destroyed the cane carrier and a quantity of sugar ready for shipment; loss estimated at \$10,000.

Up to October 1st the amount of insurance paid for white losses in the city amounted to \$6,840; Chinese, \$3,010, and native, \$600.

Several forest fires have occurred again this year both on this island and on Hawaii, and from the frequency of which, rigid measures are now adopted by the Agricultural and Forestry Department in dealing with parties responsible, whether from carelessness or otherwise.

LABOR SAVING MACHINERY.

Mention was made in last issue of the test of a model cane cutter and harvester, a local invention that had much of promise. During the year a working machine has been constructed upon this Ginaca model and put to practical test in the field, and proved its merits as a great labor saver when given sufficient traction power, having the capacity to do the work of sixteen men. The principle of cutting the cane and doing it right has been worked out and practically applied.

The test of machinery in rice harvesting was made here by F. G. Krauss of the Federal Experiment station in a rice-binder from the McCormick Co. At the first trial the ground had not been sufficiently dried, but at the second trial some days later it proved not only workable but a great labor saver, as it will do the work of thirty Chinese.

Humuula Sheep Station is the first ranch in the Territory to introduce modern machinery for its shearing, fourteen having been secured which are guaranteed to do the work of twenty-two men, with less loss of wool. They have 25,000 head to be clipped, the expected crop being 90,000 pounds. The machines are run by a five-horse power gasoline engine and the same power will be used for pressing the wool. The men are being trained in the working of the machines by an experienced party with the result so far of an average increase of one pound per head over the hand method.

FOREST RESERVES.

Much attention has been given to the reservation of tracts for the protection or extension of our forests, among which the following are set apart, viz.: Ewa reserve, comprising 28,550 acres; Waianae-kai, 3,257 acres; Lualualei, 3,743 acres; Kealia, Kauai, comprising the mauka part of the district of Puna, 9,935 acres; Kau, Hawaii, an area of 65,875 acres, and on Maui, H. P. Baldwin, representing the Maui Agricultural Co. sets apart 27,800 acres for the term of seventeen years. A tract of 14,825 acres in the Hana district is being considered. There are several other tracts of lesser areas set apart.

RUBBER TREE CULTURE.

Interest in rubber culture has the attention of investors desirous of testing its practicability in this soil and climate. From the flattering outlook in the growth of rubber trees in the Nahiku district of Maui, as also favorable reports from elsewhere in the islands, the third company has been incorporated, the Hawaiian-American, which has taken over the Howell and Nishwitz lands adjoining the pioneer Nahiku Co. tract, but below the government road and at a lower elevation. It capitalized at \$80,000 with shares at \$50 each, all paid up. The company has 520 acres of land, having taken over several individual holdings, of which 220 acres are cleared ready for new trees, and several thousand holes dug for the setting out of others. A recent report shows 7,000 Cearas planted out last year as being from 20 to 24 feet high and measuring 13-16 inches girth, a foot from the ground. A larger number have been planted this year, also doing well, with other seedlings now being set out. By the end of the year it is expected to have 150,000 upon the land.

The Nahiku Co. in the progress of their work have decided to give preference to Ceara over Hevea in future plantings and have now 600 acres planted.

The Koolau Rubber Co.'s trees are reported in good condition, some 10,000 being set out on twenty-five acres.

A tract of five acres has been assigned the Federal Experi-

ment Station for tests in fertilizing. With the Agricultural and Forestry Department experiments in Ceara rubber are progressing and favorable accounts are received from various parties who have been furnished with seedlings under agreement.

TOBACCO CULTURE.

Steps were taken the early part of the year toward starting a tobacco farm and curing houses in Hamakua, based on the successful experiments carried on in that district under the direction of Jared G. Smith. The projectors named are J. B. Castle, J. P. Cooke and Geo. P. Theilen, with C. R. Blacow as manager. Fifteen acres were to be planted as a first trial.

Messrs. Douglas and Kretschmar, the latter a tobacco expert from Sumatra, have taken up 157 acres close to land of recent experimenting. In this private venture a test of one and a half acres, returning a ton of marketable leaf, confirms the promise of last year's tests.

A recent visitor, with an eye to business, acquainting himself with conditions and prospects was so favorably impressed with the quality of tobacco produced that he took with him sufficient for 100,000 cigars to be made up for a local dealer, under a contract for monthly deliveries.

FRUIT AND PLANT INSPECTION.

The inspection work of the Board of Agriculture and Forestry under Alexander Crow is safe-guarding the islands from the introduction of injurious insect pests and plant diseases by a rigid examination of all importations of fruit and plants to an extent that comparatively few on the islands are aware.

Toward the latter part of last year a shipment of 2,262 boxes of oranges, imported from Japan, were found to contain thirteen varieties of insect pests, several of which were new to these islands. This fruit was seized, condemned and burned. Shortly afterward we were likewise spared the introduction of the "weeping lantana" pest, as also a lot of infected seeds, received in the mail.

Early in this year among a number of fruit, vegetable, tree and plant importations there were several lots found to be infected with scale, fungi and other pests, which called for their condemnation and were either shipped back by the importers, or destroyed by the officials. More care appears to be exercised of late in such shipments, past experience having taught the lesson of so doing.

EXPERIMENT STATION AID.

Satisfactory demonstration having been made of the possibilities in raising a good quality of tobacco in these islands by the officers of the Federal Experiment Station, attention is being given to other subjects.

Further effort is being made to acclimate the silk worm in Hawaii for the production of silk as a commercial enterprise, the trial this year being with the Italian variety of hardier character, though not so fine producers as the more delicate kind tested the year before. Should this kind also fail to meet the conditions, attempts to breed a variety adapted to the climate will be made.

Elsewhere is mentioned the successful trial made of a rice harvester, which, with the experiments now in progress, bids fair to revolutionize the rice industry in these islands. Under F. G. Krauss, tests from 150 varieties of rice, received through the Bureau of Plant Industry, are being conducted with the view of ascertaining the best kind for culture in Hawaii.

From the Bluefield bananas introduced awhile ago, recommended for their superior export qualities, 350 suckers were distributed this last summer, the increase since January, 1904.

J. E. Higgins of the Federal Station, under direction of Jared G. Smith, took shipments of various fruits of the islands, recently, packed in different ways and variously treated, with the view of improving its delivery and extending our export market. This "personally" conducted shipment was successful in all points and met the expectations of its promoter, for the direct benefit of fruit growers and shippers.

The introduction of top-minnows, termed the "mosquito-

eating fish," from Texas, last year, is rapidly increasing in the various ponds assigned them for propagation, here and in Hilo, so that thousands were distributed in early summer, some being sent also to Maui. It may not be generally known that we are indebted to the Experiment Station for this aid to rid the islands of the mosquito nuisance.

PLANTATION MATTERS.

One of the early projects to which the new Board of Immigration bent its endeavors was toward a change of policy on plantations relative to allotments of land for laborers, with the view of securing a better and more permanent class. All plantations are not so situated as to be able to set apart home lots in fee to its workmen, and the scheme required adjustment to meet varying conditions. Among those mentioned as disposed to set apart lands for settler-laborers are Makee Sugar Co., Hakalau, Olaa, Hilo Sugar Co. and the Waialua Agricultural Co. with possibly others.

The Hawaiian Commercial & Sugar Co.'s crop for 1906, which was completed August 4th, turned out 43,652 tons, the highest yet produced. In May last in one week's run it ground 14,000 tons of cane, producing 2,100 tons of sugar, an average of 350 tons a day. This is believed to be the world's best record.

The Central Mill Co. incorporated this year with a capital of \$375,000, with privilege to increase to \$5,000,000, to unify the milling interests of the Haiku and Paia plantations, Maui.

The Honolulu Plantation is to change its bleachery plant into a complete refinery, the machinery therefor to be installed by the Honolulu Iron Works Co.

The season's sugar crop for 1906 for these islands reached 429,213 tons, the second largest crop in its history; the banner crop being 437,991 tons, in 1903.

The new mill of the Wailuku Plantation, of most modern improvements in all essential features, is completed in good season to begin with their 1907 crop. It has a capacity of 135 tons per twenty-four hours.

JAPANESE LABOR STRIKES.

In the middle of last January occurred one of the most formidable labor strikes of island experience, at the Oahu Plantation, instigated by a handful of malcontent Japanese caused by a post mortem being held on one of the hands. The usual intercession of their consul had no effect. They demanded the discharge of the doctor, nurses, an overseer and luna, and the reinstatement of two men that had been discharged for their troublesome character. First 175 loaders went out, then 200 cutters struck. The following day the Chinese and Koreans were compelled to join them, and a day or two later the strike became general. Much stubbornness on the part of the strikers was manifest and all sorts of trivial demands made upon the plantation. A police squad was sent to the scene in case of emergency, for they would neither work themselves nor permit anyone else, nor would they accept the alternative of calling at the office for settlement and leaving the place. After six days of such experience a compromise agreement paved the way for settlement of the matter and work was resumed.

A small strike among the same nationality at Waialua took place in February, which came to an end by the efforts of their own people.

One thousand Japanese refused duty on the Onomea Plantation in June, as an opportune time considering the backward condition of the crop, through the late fire, to demand increased daily wage which was promptly refused, and on the alternative of returning to work or quitting their houses, they shortly afterward resumed duty.

WEATHER CONDITIONS, ETC.

Though the rains of last winter was under the normal, the early months of the year were quite boisterous. A Kona storm set in January 14th which lasted several days, the velocity of wind on the 18th scoring 43 miles an hour, the highest record for many years. Landings throughout the group suffered, and Maui experienced damage to buildings, flumes, etc.

March maintained its windy reputation. A heavy gale set in on the 7th which did damage to dwellings, fences and trees, and a week later a severe rain and thunder storm prevailed over the group. In Kohala three lads were struck by lightning, one fatally. The latter part of the month strong trades held for five days.

A tidal wave of twelve feet rise and fall visited Hilo, January 31st, appearing also at Kahului where it overflowed the road. On August 16th another wave of like height was reported along Maui shores, doing damage to the wharves at Maalaea and McGregor landings. Hilo was again affected at the same time with a five-foot wave.

September 3rd and 4th several shocks of earthquake were felt at Hilo, but doing little or no damage.

SHIPPING NOTES.

Among a number of long voyages experienced this year are a few entitled to record. There have been also several good trips made.

Bark *Emily F. Whitney* from Makaweli, Kauai, arrived at San Francisco, February 1st, after a 47 days' passage.

March 13th, schnr. *Wm. F. Garmes* arrived in Honolulu 113 days from Newcastle.

The large five-masted schnr. *Kineo*, with a cargo of 3800 tons sugar from Kahului, Maui, arrived at Delaware Breakwater November 14th, after a passage of 207 days.

The ship *Manga Reva* arrived at this port May 21st after a splendid trip of 30 days from Manila, and on August 30th the bark *Star of Bengal* arrived in a little less than 33 days from Newcastle.

In June the bark *Mohican* made the trip from San Francisco to Honolulu in 9 days, 16 hours.

The British steamer *Maheno*, the first turbine steamer to cross the Pacific, made the run from Sydney to this port, including stops at Brisbane and Suva, en route, in 13 days, 22 hours, 50 minutes, arriving here April 30th. In August her trip from Vancouver to Honolulu was made in 6 days, 12 hours.

NEW PACIFIC STEAM LINES.

Among competitive plans to share in the rapidly developing trade of the Orient the *Amiral Duperre*, pioneer of the new Chargeurs Reunis line of French steamers, from Europe via Asiatic ports, touching here en route to San Francisco, thence down the Coast, and home by way of the Horn, arrived in October and has been followed by the *Amiral Hameline*. There are seven vessels assigned by the Company to this line, which is planned to become a regular monthly service circling the world. With the new year three 12,000 ton steamers take their place in the line.

The *Hilonian*, of the Matson line between Portland and these Islands, arrived on her first trip July 20th. Her second trip gave promise of satisfactory development of traffic, doubtless the result of the visit of W. A. Mears, delegated as the representative of the Portland Chamber of Commerce, for the promotion of trade relations. This increase of the Matson boats has moved the steamers of the American-Hawaiian line to include Portland in their triangular runs.

A movement is in progress looking to the establishment of a steam line between San Pedro and these Islands. The project is strongly favored by Los Angeles interests, and is largely the outcome of the recent visit of the Southern California Editorial Delegation.

TRANSPACIFIC RACE.

An event quite out of the ordinary comes into the record this year, through the ready response to the suggestion for an ocean yacht race from the Coast to Honolulu, the outcome of which has been gratifying to the promoters and all parties concerned. The San Francisco disaster occurred while plans were in the formative stage and naturally reduced the number that planned to contest for the prizes.

The *La Paloma*, Hawaii's representative in the Transpacific Yacht Race, left Honolulu, April 14th, for San Francisco. C. W. Macfarlane, the owner, commanding, with Fred. Mosher as mate and navigator, and three others. She was escorted out of the harbor by the tug *Fearless* and most of the Yacht Club fleet. Arriving at San Francisco the competing yachts and course were

arranged, settling finally upon San Pedro as the starting point.

The prizes for the contest were a silver trophy, manufactured by Shrieve & Co., as the first prize, and a silver mounted calabash manufactured by Wichman & Co., and the entries were the ketch *Anemone*, 115 feet, of the New York Yacht Club, though hailing from Denver, C. L. Tutt, owner; schnr. *Lurline*, 86 feet, of the South Coast Yacht Club, Com. H. L. Sinclair, owner; and schnr. *La Paloma*, 48 feet, of the Hawaii Yacht Club, C. W. Macfarlane, owner.

In time allowance the *Anemone* gave the *Lurline* 11 hours and the *La Paloma* 27 hours. The *Lurline* in turn gave the latter 16 hours.

The yachts made a good start from San Pedro on June 11th at noon, and arrived at Honolulu in the following order and time, viz: *Lurline* arrived June 23rd at 7 p. m., in 12 days, 7 hours; *Anemone*, on the 25th at noon, 14 days, 25 minutes, and the *La Paloma*, at midnight on the 27th, 15 days, 11 hours, 20 minutes.

A cordial welcome greeted the yachts as they arrived and many of our leading men in and out of yachting circles delighted to do them honor. A grand luau was given the visiting party by the Hawaii Yacht Club at their headquarters, Pearl Harbor, where with invited guests over 200 enjoyed the festivities of the occasion, during which Governor Carter presented the prizes to the winning yachts.

THE NUUANU DAM.

Work on the Nuuanu Dam was interrupted during summer by the reported discovery of defects in its construction according to plans, whereupon considerable discussion and public interest was taken in the question of its condemnation. Eventually the Governor cabled H. Clay Kellogg, C. E., in Southern California, (constructor of the Wahiawa Dam), to come and pass upon the plans and work, and pending his arrival a halt was called in the work.

A thorough investigation was proceeded with upon arrival of the expert and several days given to careful inspection of the site and work, finding much to confirm the grounds of objection raised

by Inspector Patterson in that parts of the dam rests on ground continually soft by reason of running springs, affording insecure foundations.

The result of the examination and study was a report embodying much detail in showing the construction on plans in use as unsafe, and that changes recommended in the work, and necessary for the protection of life and property below it, will require \$50,000, which report the Governor advised to be adopted.

POULTRY AND KENNEL EXHIBITS.

The first exhibit of the Honolulu Poultry Association occurred December 7-9, 1905, at which various prizes were awarded. Much public interest was manifest therein and the variety of fowls and pigeons shown, some 70 in all, much exceeded expectations and would have done credit to older organizations on the mainland.

A bench show of the Hawaiian Kennel Club, also its first exhibition, opened at the Queen Street Skating Rink, September 6th, 1906, and held sway for three days to the enjoyment of a large attendance through the number and variety of canines gathered together. The excellence of the exhibit was a surprise even to dog fanciers, rendering it difficult in certain classes to decide upon the prize winner.

NECROLOGY.

Again we are called upon to record a large number of well-known names of Island people that have been called to pass over the river, viz: Mrs. R. A. Lyman at Hilo; W. F. Allen; Bro. A. Carbonnier, oldest member of the Catholic Mission; N. F. Burgess; Mrs. F. E. Hobron; Mrs. Ruth Horn; A. Enos at Wailuku; Clarence M. White; Mrs. F. H. Wichman; Mrs. Catherine Steward; Harold Giles; Mrs. Persis G. Taylor; Alatau T. Atkinson; Dr. F. R. Day; Louis Marks; W. C. Borden at Hilo; John E. Bush; Miss H. F. Coan at Hilo; Dr. W. E. Taylor, U. S. N.; Mrs. Matilda Hughes; Samuel F. Leslie; Chun Afong at Macao, China; A. M. Mellis; A. J. Lyon; Geo. T. Deacon; E. J. Van Doorn; Mrs. C. C. Kennedy at Hilo; Father Sylvester at Wai-

luku; Henry Zerbe; Jas. W. Girvin, and Mrs. G. (Dowsett) Dunbar at San Francisco.

MISCELLANEA.

The first session of the Hawaiian Mission Conference (Methodist) opened in Honolulu, December 28th, 1905, at which Bishop Hamilton, who arrived for that purpose, officiated as president, and Rev. J. W. Wadman as superintendent. During Bishop Hamilton's visit the North Pacific Institute property was purchased for the headquarters of Korean work, and the Melrose property, on King street, was acquired for the establishment of the Susanna Wesley Home.

The Federal authorities deciding to establish a leprosarium at Kalaupapa, Molokai, has assigned charge of the work to Dr. W. R. Brinckerhoff, of Boston, assistant pathologist in the Hartford Medical School, who arrived here at the end of March to enter upon his duties. Plans now in Washington for the hospital and laboratory are said to be completed and bids for their construction called for.

Kuaiwa, a young native of Lahaina, comes into the hero list for plunging into the sea and rescuing two Japanese that were struggling in the surf in one of the March storms. Judge A. N. Kepoikai was appointed to "officially" thank him for his brave deed, and a Carnegie medal has been sought for in his behalf.

Machinery has been ordered for the Koa lumber mill to be located in the forest in the Volcano House region and will connect with the volcano road by three miles of tramway. It is said to be of a capacity of 250,000 feet per month. A sample shipment of koa lumber from Hilo to San Francisco, about 16,000 feet, rough sawn at the mill of the Hilo Railroad Co. from the Shipman tract, of excellent quality, has gone forward.

The pineapple and canning industries are having extension this year at several new points, besides enlargement at Wahiawa. This in turn has brought the establishment of the American Can Co. in this city, with a capacity of 40,000 to 50,000 cans a day, the machinery for which was received in April.

The long projected crematory is in course of construction at

the rear of Nuuanu Cemetery on the recently acquired Campbell property. Completion, awaiting the arrival and erection of the retort, is looked for about the opening of the new year. Mr. Fred Harrison is the builder, from designs by Architect Traphagen.

Through action of the Ministerial Union of this city, last September, an end has come to the prize fighting contests which had become too frequent for common decency, it having been shown to be in flagrant violation of Federal law.

The corner stone of the additional bays to St. Andrew's Cathedral was laid by Bishop Restarick and clergy with appropriate ceremonies, November 23rd, 1906. This enlargement is conformatory to original plans when the corner stone of the main structure was laid by Kamehameha V, thirty-nine years ago.

JUBILEE NUMBER OF THE ADVERTISER.

JULY 2, 1906, the Pacific Commercial Advertiser of this city celebrated the Fiftieth Anniversary of its existence by a copiously illustrated issue of 120 pages of specially prepared articles of historic interest, besides a facsimile of its first number of July 2, 1856, and a News section of eight pages into which several articles crowded out of the eventful number appeared.

Where a paper celebrates in such a generous spirit as did the Advertiser on the occasion mentioned, furnishing an issue of over twelve times the usual number of pages, all freely illustrated with half-tones, it is small wonder that it met with such public appreciation as to entirely exhaust the large edition in a few days, and pass to the "out of print" list.

The issue of the day previous fortunately gave the contents of the Jubilee number which, in a sense, made up for the omission of this necessary feature from the paper itself; but as many valuable articles in daily papers are frequently lost sight of, or are difficult to trace, we give space in the Annual as a convenient reference place for such, of the list of the specially prepared papers and contributions of the Advertiser's fiftieth anniversary number of July 2, 1906, omitting the notices of various business houses, and items of brief mention.

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THE first foreign animals imported into Maui were several fine goats, which were left with Kahekili by Vancouver, at Lahaina, on his first visit there in order to establish peace throughout the islands.

SUBSTITUTION.—Through the courtesy of Mr. A. Gartley it had been planned to include his paper on the "Wainiha Electric Power Plant," as read recently before the Hawaiian Engineering Association, in this issue of the ANNUAL, but as the Planters' Monthly holding a prior claim thereon had not gone to press with it, its place is given to an interesting reminiscent article on Lahaina by Gorham D. Gilman, a paper that was applied for several years ago.

LAHAINA IN EARLY DAYS.

BY GORHAM D. GILMAN.

(From the Anniversary Number of the Pacific Commercial Advertiser, July 2, 1906.)

IT is probably well known to the older residents that the Lahaina of the ancient time was the capital city of the Islands, that is to say, the seat of royalty of the Hawaiian kingdom, and also was the place of residence preferred by the King Kamehameha III, as well as that of most of the old chiefs, and chiefesses, who constituted the court at that time. There were many reasons for this, perhaps the most important of which was the privacy which they enjoyed, living here in more of their natural conditions than was possible elsewhere.

Approaching the place from the sea one is struck by the natural beauty of the location. A long strip of land apparently very tropical, extends for some two miles along the beach. The foliage is very dense, among which can be seen the cocoa palm, the breadfruit, the mango, and the kukui or candle nut. Rising half a mile back from the line of the sea beach the mountains slope upward to a height of 6000 feet, not in one smooth range, but they form valleys by the deep natural ravines in which are shaded the different indigenous trees of the island. It is a scene of rare beauty, particularly at the time of the setting sun when the mountain peaks are in full flush of a coloring which is rarely excelled or seen anywhere else. The purple haze shining with a light that is extremely beautiful, shaded by the depths of the valleys and united to the beautiful coloring of the sea produces a scene seldom witnessed elsewhere.

The town itself is a charming, drowsy, dreamy sort of a village with one broad street running its entire length, with but one side of it to the sea. The dwellings and stores are scattered along this line beneath the shade trees and form at the distance quite a picturesque scene. The trading part of the town is mostly in the northern side. Here we have the various combinations of the

stores in the place—the Chinaman with his variety of Chinese goods, the German with his loaves and pies, and the Hawaiian and his lanai or cocoanut shade with his variety from the sea which rolls in front.

I witnessed a capture here one day of a good-sized shark. The fish had evidently found a sunny spot in the coral reefs in front where he could poke his head under the shelving coral and take a happy sleep in the warm water. He was discovered by some boys who thought they would have some fun with him. Taking a line with a long noose to it some of the larger and bolder ones went into the water, dealt the noose on the fish and with a cry startled the boys at the other end of the line. They were so quick on pulling that the big fish had no opportunity of turning. With exulting cries they awoke the neighborhood; we rushed out to see the victors and the captive on the beach, the boys evidently having the best of it.

SOME OF THE LANDMARKS.

By passing through the water gates of the narrow channel which are at times fierce and forbidding from the big rollers that come in from the broad Pacific and make the passage one of no little danger, while at other times it is only disturbed by a gentle swell which, as the boat approaches the landing, simply gives it a gentle motion as it propels it along. Immediately at the landing are very evident marks of the ancient times consisting of quite a long tract of land forming what is familiarly known as a point, which is built up by a wall of stone to keep the sea water back and filled in with earth and making quite a broad plateau. On this was erected, as tradition informs, the first brick house, a small two-story affair built by the order of the old King, Kamehameha I. Near the landing stood a long thatched building in native style; this was said to be the place where the preparation for and the production of the first book of law was made. It is said that the Rev. Mr. Richards after he became employed by King Kamehameha III, gave lectures to the king and chiefs on political economy and assisted in outlining the simple laws for the government of the kingdom. This was for the forenoon

schooling and in the afternoon the royal party were left by themselves to discuss the articles brought before them during the morning, and the condensed consensus of opinions crystalized into the law as it was published, familiarly called the Little Blue Book.

Mauka from these premises was a large kalo patch which even in my day, in the 40's, showed signs of excellent care and protection. This patch was bordered with cocoanut trees and gave every evidence of the care and attention given to this important article of food in the early times.

Across the street stood the two dwellings of the Mission families, the place of hospitality for those who were passing back and forth between the islands, and they proved most agreeable shelter to those who were called to go by land or sea. These residences are interesting to those who can recall the trials and difficulties which at times beset the faithful missionary even from the hands of his own countrymen. As the king and chiefs became enlightened by the teaching of the missionaries they were engaged to formulate laws as we have seen for the better regulation of the shipping and of strangers coming within their gates.

In front of the landing to the right is what was known as the old fort. A very poor attempt as a matter of defence to be sure. Upon its walls, which were about twelve feet high and as many more feet thick, were mounted a curious assortment of old cannon which were occasionally loaded and fired to salute the king on his arrival or his departure. The place was also used for the confinement of those who were arrested for some breach of the law and were held there until the time of trial. It was most scantily provided and an undesirable place of residence for those who were compelled to share its uncomfortableness. There were also two establishments for various ships that called at the port.

Scattered along the beach facing the ocean were the residences of the high chiefs of the land. Among the most pretentious was that of the ex-queen of Kamehameha II, Auhea, most familiarly known as the big-mouthed queen. This was a fine building of colored stone plaster with a wide veranda and every convenience suitable for those who occupied it. I think it was in this building that King William was born. Under the shade of the beautiful

kou trees the royal company spent their pastimes in sports and story telling to gratify their simple desires. Just beyond adjoining was the place of the Princess Nahienaena, the only daughter of Kamehameha I, and sister of Kamehameha III. This was one of the finest straw houses in the village, erected in a plot of ground partly reclining from the beach with sea walls in front and planted with kou trees. The house was some thirty by forty feet in dimensions. The interior was lined by dry banana stalks, and had hard earth floors covered with fine mats. It was a very commodious and comfortable house for the climate. In later years it was occupied by the United States Consul, and through him I became a tenant of Kamehameha IV. It was while here that I had the pleasure of entertaining a great number of Hawaiians and visitors from abroad, as it was almost half way between Honolulu and Hawaii. It was often a pleasure to entertain guests passing from one island to another.

SCENES AND INCIDENTS.

One amusing incident is my being awakened by a gentleman and lady knocking at my door asking for admission. As soon as possible the party came in, the lady explaining that she had been advised by her physician at Honolulu to take her three children, who were suffering from the whooping cough, for a little trip over the water. Consequently resting on the friendship of her husband and myself, she had presented herself and asked for admission. It was very pleasant for me to care for her; yet I little expected the notoriety which I received on the next Sabbath morning when I was a little surprised to hear my good friend, the pastor of the church where I was as usual attending, announce from the pulpit to his people, "Beware, my people, and not go to Gilman's, for there is a lady with three children who have got the whooping cough and if you go there you may catch it."

May I relate another incident which was the means of forming a life-long friendship? Another good lady from Honolulu whose husband I well knew, called at my door at night and asked for admission. I most gladly arranged for her comfort, she having just come on shore from one of the little coasters and she had

been very sea-sick and acknowledged that she was hungry. I had my servant prepare such a meal as he could at that time of night, while his wife was preparing a bed for the weary one, after which she appeared very much refreshed. In the morning she was going on her way and said to me, "I did not expect to stop here when I left Honolulu and I have no money. If you will send you bill to my husband he will pay you immediately." I said with a lurking smile, "When I send it perhaps he will." She seemed a little embarrassed and repeated the statement requesting me to send the bill. Evidently she did not quite understand me and she said, "Do you not keep a hotel?" I said that I had never been in that business, but I had a great deal of pleasure in entertaining my friends. "Well," she said, "I have often heard of Gilman's Hotel and on the strength of that I routed you up at night thinking I should pay for the entertainment I enjoyed." No bill was ever sent, but a lifelong friendship was established.

There was a variety of interesting little incidents connected with my residence in Seaside Cottage, the name of the place where I lived, which come back to me with very precious recollections of those who have passed on. There are few who are left, one of whom I venture to think will remember pleasant moments beneath the thatch roof of Seaside Cottage, who now holds the title of Her Majesty, the Queen.

Adjoining these premises was one building quite noted, though small and inconspicuous, which was erected to receive the remains of the royal pair, King Liholiho and Kamamalu, the Queen, which were brought back from England by the English frigate *Blonde* and deposited here where they remained for several years until removed into the large tomb adjoining the king's residence where, with other remains of royal personages, they remained until removed to the Mausoleum in Honolulu. In later years after the royal remains had been removed, the little building was remodeled into a very tasty and convenient little cottage which was occupied by my partner, George Brayton, Esq., who was one of the United States Consuls at Lahaina.

THE OLD CHIEFS.

A little further along the shore was the residence of the high chief Paki and Konia, the parents of the honorable Mrs. Bernice Pauahi Bishop, who was not an infrequent visitor at Seaside Cottage, which was the center at that time of most of the social entertainments of the village.

You can form some idea of the noble stature of the old chiefs by a look at Paki's surf board now at the Bishop Museum. A piece of wood remarkable for its size, length and breadth, which was the sea piece of this noted chief. The sea in front of these premises and along the line of the king's premises was the favorite for sea bathing, surf riding on a board or canoe. Under favorable conditions one could see the entire company of king and nobles enjoying the rare sport afforded by the incoming waves. It was somewhat of a promiscuous gathering, but all were absorbed in the exhilaration of the sport, although some have differed in the avoirdupois as the royal sportsman or sportswoman of 350 pounds, to the youngster that was playing along by the wave-lets on the shore. There was an attempt as a building of a so-called palace which answered for a time as the show place, the name which should properly attach itself to royalty. It was also occupied part of the time by the courts of the kingdom. It was more of a curiosity than an adornment. It seemed out of place amid all the tropical profusion and exuberance of natural life to see this building intruding into the atmosphere. With some idea of making the building larger they undertook to double its length and made a still further blotch on the landscape. Fortunately so far as beauty was concerned it was partly dismantled and never finished and remained quite a conspicuous figure on the beach. However, in later years they had to transport its stones to the premises of the old fort where they now appear in the government building which is much more in harmony with the surroundings.

Again passing across the street we come to a narrow causeway across which a little gate is constructed, so that passing is prevented unless by permission of the sentry of the king who has charge of the royal premises. The buildings occupied by the

king are in keeping with most of the other large, fine thatched houses with modern conveniences for comfort and with a certain lanai or kind of canopy made of cocoanut leaves and natural vines.

RECOLLECTIONS OF ROYALTY.

May I be permitted to discuss my first appearance to royalty on visiting Lahaina in the early 40's? I was intrusted with a message to his Majesty, the King. In due time I presented myself at the gate. My name was taken and I was immediately ushered into the presence of the king, who was seated beneath the lanai with several of his people attending. Being ushered into the royal presence I felt a little embarrassed, but tried to give the message in Hawaiian as best I could. Detecting myself as talking Hawaiian to the king I immediately changed and spoke in English, in which language I knew the king was proficient, and for a few moments the conversation was carried on in this way, I speaking English and the king speaking Hawaiian until with a laugh the king said that I spoke Hawaiian well enough to talk to him. This removed my embarrassment, and our interview was exceedingly pleasant. From that day on I occasionally met the king. One day I was standing in a store door with the mate of a ship that was lying in the harbor when he said, "I would very much like to see the king." "There he goes," I said. "Where, where?" he asked, with an exclamation of interest. "Why," I said, "riding on that horse." "Where, where?" he asked again. I said, "Do you not see that man there?" The king was dressed in a white suit with a white panama hat and, as usual, was riding alone by himself on a gray horse. My friend at my side said with an air of disgust, "Is that the king? Well, if I could not be more than that I would not be a king." Still another little incident that will reveal the at-homeness of the king and people felt at Lahaina: One day I heard some people singing coming up the road, and stepping to the veranda I saw a small company parading the streets in a shower of rain. It was the king, and his wife, the queen, his trusty friend and official, John Young, and wife, and several others in the party. They were without shoes and stockings and hats and with a large wreath of maile and no more

clothes than necessary. They were as happy as any children playing in summer showers. The company had just come from performing one of those ancient acts of community interest, teaching the people the dignity of labor. The king and his friends had a kalo patch—which your readers will probably understand. Thus he followed the example of his royal father who was said to have given his example to his people at Kohala of the dignity of labor. These little incidents may seem very trivial, but I think they serve to give illustrations of the easy, happy life which the king enjoyed.

On the mauka side of the water encircling the king's residence were the premises of the old chief Hoapili and his wife, who were among the first of the nobility to be married by Christian ceremony, she assuming the name for the first time of Hoapili Wahine, that is—Mrs. Hoapili. These were people of importance. Hoapili was the constitutional governor of the island. Lot Kamehameha V was his adopted son and heir-apparent to the governor. I am reminded of a story of the young chiefs; when at the Royal School at Honolulu the boys were discussing their future prospects, Moses, the oldest one, said: "I shall be governor of Kauai." Lot said, "I shall be governor of Maui." Alexander Lihiliho, the youngest of the three, quietly said: "When you are governors who will be king?" Alexander became king, succeeded by Lot.

MISSIONARY LIFE.

Joining the premises on the land stood the Protestant church, the church of the Missionary, the first stone church erected on the Islands. Its pews, if they could be so called, would hardly answer for services of the present day. They were made in a rude manner, generally cumbrous. It was my custom usually to attend one service a day. I cannot forget the impression made on me after attending a special service. The king and the government had been involved in political difficulties through which I had been assigned office in Honolulu, which had been decided would not be a success. By the king and his advisers they had sent a delegation to the United States and the nations of Europe for the purpose of arranging matters in the hopes of doing away

with the difficulty which had accumulated on unjust charges and misrepresentations. The Rev. Mr. Richards had been in immediate service with the government as their minister and adviser, having sacrificed his position under the American Board. When the governor failed to secure anyone with needed talent and ability from the United States, Mr. Richards and Haalilio, one of the king's most intimate friends, had been selected to perform this delicate mission. During the Sunday afternoon which I referred to the king and all the members of the court were attending services. After the usual preliminary exercises Mr. Richards arose and said: "E na hoahanau a pule oukou no makou"; "Brethren pray for us."

I noticed as he pronounced these words that it was with deep feeling in his message and almost apparent pleading for sympathy. I did not know at the time what special occasion called for it, but that evening in front of my house by the beach I saw the little company of the king and queen, with a few of his most intimate friends, passing in front of the place. With not an unnatural curiosity perhaps I was tempted to follow at a distance. I could see in the offing the king's yacht with the main sail hoisted and glittering in the moonlight. A boat was waiting on the sand. Mr. Richards stepped in, Haalilio, and then the king. A low wail arose from the little crowd which was very touching. The boat was pushed off, the oars fell, the voyagers started on their way. I may say in passing, the mission was successful.

FROM OLD TO NEW.

A change from the old to the new, like most other changes, was slow but steadily progressing. Political exigencies called for the removal of the king from the peaceful and ideal life in Lahaina to the more conspicuous living at Honolulu. This was necessarily the case from the gradual demands, from the progress of the times, to meet the exigencies as they were constantly arising from the foreign government and business interest. There had been for many years a few places occasionally touched at in the islands for furnishing supplies. The ships connected with the opening up of the northwestern territory trade with Indians for the furs,

passed on to China to dispose of the same articles, and to load teas and other products for the United States and England.

In 1848-49 and '50 there was a great demand made upon the islands for furnishing supplies in the way of vegetables for the California market. Gold having been discovered, thousands of barrels of potatoes and hundreds of hogs were shipped to the San Francisco market through the port of Lahaina.

From 1840 to 1850 was the great period for the whale ships. The Okhotsk Sea and the Arctic Ocean had been discovered as great resorts for the whale. Large numbers of whale ships were dispatched there for the purpose of obtaining the oil. Naturally the Hawaiian Islands, being right on the direct route to that region, Lahaina was a favorite place for anchoring, as the crews were better controlled there than they would be in the little harbor of Honolulu. Leaving on shore all unnecessary articles of the voyage the ships went north in pursuit of their vocation.

I could hardly fail to refer to some of the residents during the years I was at Lahaina. A store was near the place with large timber doors facing the water. During the year when the season was dull this was the common gathering place and there was quite a variety in those who came to spend an hour or two and chat and gossip and watch the packets as they came in from the other islands. Particularly the two fancy boats which were built in the United States, the *Ka Moi*, under the command of Captain Hobron. If I mistake not there could now be found hanging in the hall of T. W. Hobron a silver trumpet inscribed to his father as a gift from me for the purpose of naming the beautiful clipper boat under his command. She was so named in respect for Liho-liho, with whom I had pleasant acquaintance, so much so that one time on leaving Lahaina to be gone a week, the king addressed me a note which I prized:

Dear Gilman:

"Please lend me the loan of your cook house while you are gone."

The second vessel was the *Nettie Merrill*, commonly called the

Nettie, also built for Capt. Hobron.* It was an object of no little interest to watch the incoming of the vessels as they came up the channel, and we learned to distinguish which was which from the cut of the jib and from the top of their fore and aft sails as they approached.

Among those who gathered at the store door was our friend Peter Treadway, who almost always had an illustrative story to tell of some fresh experience. Then again the portly judge, and by no means last or least was the Rev. S. E. Bishop, the seaman's chaplain of the place.

MARK TWAIN RECALLED.

The principal entertainers were two residents who had a very adventurous life according to their tellings. One day we were quite amused by a story of Mark Twain as told by Oudinot. "One day traveling through a secluded path I found myself in the presence of a monstrous bear. There was no chance to run, for the bear would be after me. He was a big fellow, taller than I and my only hope of escape was to cross in on him, trip him and then knife him. Proceeding to execute this plan of campaign, I crossed him, grabbed him around the waist and he gave me a fearful hug, but with my knowledge of wrestling, I tripped him, we fell, I on top. We fell on an incline, and in an effort to free myself, we rolled over and started on our decline down the hill. After rolling some distance, we struck a tree that lay in our descent. I straightened myself, the bear straightened himself, up he sat on one end of the tree, and I on the other. The bear looked at me and nodded as if to say he had enough, and we both got up and walked away."

One day Mr. Baker offered to tell us an experience he had. A laborer who was working in a quarry, and who was employed one time drilling, charged the hole with a fuse for blasting. Unfortunately the fuse was ignited and there was an explosion, and the man was blown up into the air. In course of time he fell back,

* Mr. Gilman at this point confuses the *Nettie Merrill* with the *Emma Rooke*. The former was built for Clark, Austin and others, for the Hilo trade, touching at Lahaina en route. The latter vessel was the *Lanaina* packet under command of Captain Chadwick and in which Captain Hobron held a prominent interest.—Ed.

and singular as it may seem, he landed right in the same place where he was sent from. He said he didn't mind the trip, but when they came to pay him off that night, they deducted from his wages the amount of time he stayed up in the air.

Years go by; once again I land on the sands of Lahaina. The building that once bore the name of Gilman & Co. still stands. Its formerly, varied contents for ships, vessels, and native trade are all gone, and there is only a store house for the sugar plantation.

The old council house that once held the proud chiefs, the king and his advisers, has passed into a matter of history. The chiefs that once gave reputation and dignity have all passed on. Seaside Cottage, once containing royalty and distinguished guests, is no more, and in its place stands growing a grove of young algaroba trees. Few or none in the streets to recognize me; the old church still standing as a memento of the olden time, and so I say Aloha! Aloha ino ia Lahaina!

All indications point favorably for a large influx of visitors to these islands during the coming year, as the fruit of the well directed efforts of the Hawaii Promotion Committee in placing the attractions of Hawaii in central points of tourist travel. The excursion of the Oregon girls this past summer through the enterprise of the *Oregon Daily Journal*, of Portland, followed later by the visit of some forty members of the Southern California Editorial Association, are giving favorable returns. Both of these parties spent several weeks in visiting various points of interest throughout the islands, and their recorded impressions of this "Paradise of the Pacific," emanating from the different journals represented, and others through them, widens the knowledge of our rightful claim to superiority of climate and tropic charm.

A movement is in progress looking to the excursion of a representative body of Southern Californians visiting us in February, coming by special steamer from San Pedro, and a like party is being worked up by the Portland Commercial Club for the early part of the year.

Steps are also taken to secure the authorization of the State Department for the next convention of the Consular Pan-Pacific Congress to be held at this the "Cross Roads of the Pacific," to comprise all consuls whose posts border on this ocean.

HAWAIIAN FOLK-LORE IN BOOK FORM.

ANNOUNCEMENT.

IT will doubtless interest many readers both here and abroad to learn that the steadily increasing demand for a collection of Myths and Traditions of the Hawaiian Islands is shortly to have fruition. The only other work of this character was that of Kalakaua's edited by R. M. Daggett, a subscription work that has long been out of print.

Recent mail brings advices of the prospect of issue shortly of the collection of the legendary articles that have been a feature of the Annual for many years past. These have all had careful revision and the series enriched by the addition of a number of others, including several new ones specially translated for the work.

The collection embraces twenty-seven stories, and will be freely illustrated with sixteen full page half-tones of choice island scenes and subjects, proofs of which have been received. The volume will be of handy 12 mo. size of over 300 pages, and will issue from the press of A. C. McClurg & Co., Chicago, Ill., under the title of "Hawaiian Folk Tales: A Collection of Native Legends," compiled by Thos. G. Thrum.

This is in response to frequent requests for these unembellished native traditions to be put together in book form, or for permission for their publication as a syndicate series—which latter proposition was respectfully declined. The volume will appear early in the opening year and should meet with a ready sale from the widening circle of those interested in all that pertains to Hawaii.

Mrs. F. R. Day's work on Hawaiian Legends, of which "The Princess of Manoa" is the title story, issues in New York in time for the Christmas season there. But for the San Francisco disaster of April last the book would have had earlier publication in that city.

LIGHT HOUSES, HAWAIIAN ISLANDS.

Condensed from List of Lights and Fog Signals of U. S. on Pacific Coast, Etc., Corrected to February, 1906.

Courtesy of Captain J. R. Slattery, E. C., U. S. A.

Laupahoehoe.—On Laupahoehoe Point, northerly side of anchorage, about 20 miles northerly of Hilo Bay, and on the northeasterly shore of the Island of Hawaii. Fixed red light. Lens lantern, 48 feet above high water.

Pepeekeo.—On Pepeekeo Point, about $\frac{1}{2}$ mile southerly of Alia Point and 7 miles northerly of Hilo Bay, easterly shore of the Island of Hawaii. Fixed white light. Lens lantern, 65 feet above high water.

Paukaa.—On a high bluff, on Paukaa Point, about $\frac{1}{2}$ mile southwesterly from Kanaha Point, northerly side of Hilo Bay, easterly shore of the Island of Hawaii. Fixed green light. Lens lantern, 170 feet above high water.

Coconut Point.—On the Government wharf, at the foot of Waianuenue street, Hilo, and about 400 feet southerly from Coconut Point, westerly side of Hilo Bay, easterly shore of the Island of Hawaii. Fixed red (electric arc) light. Lens lantern, 25 feet above high water.

Waiakea.—On the railroad wharf at Waiakea, easterly side of Hilo Bay, easterly shore of the Island of Hawaii. Fixed red (electric arc) light, 60 feet above high water.

Kawaihae.—About $\frac{1}{4}$ mile northwesterly from the village of Kawaihae, Kawaihae Bay, westerly shore of the northerly part of Hawaii. Fixed red light. Lens lantern, 60 feet above high water.

Mahukona.—On the beach on the southerly side of Mahukona anchorage, westerly shore of the northerly point of the Island of Hawaii. Fixed white light. Lens lantern, 75 feet above high water.

Kauhola Point.—On Kauhola Point, about 5 miles easterly from Upolo Point, and about 2 miles to the northward and westward of Keokeo Point, and about 2 miles to the northward and westward of Keokeo Harbor, northeasterly side of the northwesterly point of the Island of Hawaii. Fixed white light. Lens lantern, 65 feet above high water.

Kanahena Point.—On Kanahena Point, on the lava flow to the northward and westward of Keoneio Bay, about 3 miles to the southward of Makena Bay, westerly shore of the southwesterly part of the Island of Maui, and on the northeasterly side of Alalakeiki Channel. Fixed white light. Lens lantern, 50 feet above high water.

Maalaea.—On the westerly corner of the wharf at Maalaea Landing, northwesterly part of Maalaea Bay, westerly shore of the Island of Maui. Fixed red light. Lens lantern, 12 feet above high water.

Lahaina.—At landward end of Government wharf, Lahaina Harbor, easterly side of Auau Channel, and westerly shore of the northwesterly part of the Island of Maui. Fixed red light between N W $\frac{3}{4}$ N and N by E $\frac{3}{4}$ E, fixed white between N by E $\frac{3}{4}$ E and E, and fixed red between E and S E $\frac{1}{4}$ E. Lens lantern, 60 feet above high water.

Kaunakakai Front.—In the village of Kaunakakai, northerly side of Kai o Kalohi Channel, southerly shore of the Island of Molokai. Fixed white light. Post lantern, 40 feet above high water.

Kaunakakai Bear.—In the village of Kaunakakai, 504 feet N 25° E (NNE $\frac{1}{4}$ E) in rear of preceding. Fixed red light. Post lantern, 45 feet above high water.

Lae o ka Laau Point.—On Ka Lae o ka Laau, the low black point forming the southwesterly extremity of the Island of Molokai. Fixed white light. Fourth order, 50 feet above high water.

Diamond Head.—On the southwesterly side of Diamond Head, southerly shore of the easterly part of the Island of Oahu, and about 4 miles southeasterly of the entrance to Honolulu Harbor. Fixed white light with a fixed red sector between N. 88° 23' E (E $\frac{1}{4}$ N) and S 80° 07' E (E $\frac{3}{8}$ S). Third order, 146 feet above high water.

Honolulu Front.—Near the easterly edge of the reef and the westerly edge of the channel in Honolulu Harbor, and about $\frac{3}{4}$ mile from the entrance to the harbor, southerly side of the Island of Oahu. Fixed red light from seaward, between N W $\frac{1}{4}$ W and E; fixed white inside the harbor. Fourth order, 26 feet above high water.

Honolulu Bear.—On the top of the Custom House, Honolulu, 3/10 mile N 14° 51' E (N by E $\frac{3}{4}$ E) in rear of the preceding. Fixed green light. Lens lantern, 56 feet above high water.

Barber's Point.—On Barber's Point, the southwesterly point of the Island of Oahu, and about 13 miles to the westward of the entrance to Honolulu Harbor. Fixed white light. Lens lantern, 50 feet above high water.

Nawiliwili Harbor.—On Ninini Point, northerly side of the entrance to Nawiliwili Harbor, southerly part of the easterly shore of the Island of Kauai. Fixed white light. Lens lantern, 70 feet above high water.

Midway Islands.—On Observation Spot, a sand dune at the center and highest point of the northerly end of Sand Island, one of the Midway Islands. Fixed white light. Lens lantern, 73 feet above high water.

In connection with the foregoing list of lighthouses it may not be inappropriate to note that active steps are in progress for extending and improving the light service of the port of Honolulu and safe-guarding the windward coast of Oahu.

Plans have been completed by Captain J. R. Slattery for a new light-house and keeper's quarters to be erected at a new location seaward of, and substituting the present one at the turn of the channel into the harbor, in conformity with planned improvements and extension of the harbor, work upon which will be commenced shortly.

Plans for the rear range harbor light are also completed, the same being in the form of a tower, somewhat ornamental, to occupy a site at, or adjoining the foot of Fort street, to take the place of the green range light at the Custom house.

The lighthouse settled upon for Makapuu Point, Oahu, plans of which have been recently forwarded to Washington, contemplates the erection of a structure of but thirty feet in height owing to the elevation of its site.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mill. (Corrected to Nov. 15, 1906.)

NAME.	LOCATION.	MANAGER.	AGENTS.
Apokaa Sugar Co.*	Ewa, Oahu.....	G. F. Renton.....	Castle & Cooke
Ewa Plantation.....	Ewa, Oahu.....	G. F. Renton.....	Castle & Cooke
Gay & Robinson*	Makaweli, Kauai..	Gay & Robinson..	Waterh'se Tr. Co.
Grove Farm*	Nawiliwili, Kauai.	Ed. Broadbent....	Hackfeld & Co.
Hakalau Plant. Co....	Hilo, Hawaii.....	J. M. Ross.....	Irwin & Co.
Halawa Sugar Co....	Kohala, Hawaii..	T. S. Kay.....	Waterh'se Tr. Co.
Hamakua Mill Co....	Hamakua, Hawaii.	A. Lidgate.....	Davies & Co.
Hawi Mill & Plant....	Kohala, Hawaii..	J. Hind.....	Hind, Rolph & Co.
Haw. Agrl. Co.....	Kau, Hawaii.....	W. G. Ogg.....	Brewer & Co.
Haw. Com. & S. Co....	Puunene, Maui...	F. F. Baldwin....	Alex. & Baldwin
Hawaiian Sugar Co..	Makaweli, Kauai..	B. D. Baldwin....	Alex. & Baldwin
Hawaii Mill Co.....	Hilo, Hawaii.....	W. H. Campbell..	Hackfeld & Co.
Hilo Sugar Co.....	Hilo, Hawaii.....	John A. Scott....	Irwin & Co.
Honolulu Plant. Co..	Halawa, Oahu....	Jas. A. Low.....	Irwin & Co.
Honokaa Sugar Co..	Hamakua, Hawaii.	K. S. Gjerdrum...	Schaefer & Co.
Honomu Sugar Co....	Hilo, Hawaii.....	Wm. Pullar.....	Brewer & Co.
Hutchinson S. P. Co..	Kau, Hawaii.....	C. Wolters.....	Irwin & Co.
Kaeleku Sugar Co....	Hana, Maui.....	I. Chalmers.....	Grinbaum & Co.
Kahuku Plantation ..	Kahuku, Oahu....	Andrew Adams....	Alex. & Baldwin
Kekaha Sugar Co....	Kekaha, Kauai....	H. P. Faye.....	Hackfeld & Co.
Kilauea S. Plant. Co..	Kilauea, Kauai....	F. Scott.....	Irwin & Co.
Kipahulu Sugar Co..	Kipahulu, Maui....	H. Haneberg....	Hackfeld & Co.
Kihe Plantation*	Kihe, Maui.....	Jas. Scott.....	Alex. & Baldwin
Kohala Plantation....	Kohala, Hawaii..	Geo. C. Watt.....	Castle & Cooke
Koloa Sugar Co.....	Koloa, Kauai....	W. Weinzheimer..	Hackfeld & Co.
Kailua Sugar Co....	Kona, Hawaii.....	.....	C. J. Hutchins
Kukaiau Mill Co. (†)	Hamakua, Hawaii.	E. Madden.....	Davies & Co.
Kukaiau Plant Co....	Hamakua, Hawaii.	Albert Horner....	Hackfeld & Co.
Laie Plantation.....	Laie, Oahu.....	S. E. Wooley....	Alex. & Baldwin
Laupahoehoe S. Co..	Laupahoehoe, Ha.	C. McLennan....	Davies & Co.
Lihue & Hanam'lu Mill	Lihue, Kauai....	F. Weber.....	Hackfeld & Co.
Maee Sugar Co.....	Kealia, Kauai....	G. H. Fairchild..	.....
Maui Agrl. Co.....	Haiku, etc., Maui.	H. A. Baldwin....	Alex. & Baldwin
McBrvde Sugar Co..	Wahiawa, Kauai..	W. Stodart.....	Davies & Co.
Niulii Mill & Plant'n.	Kohala, Hawaii..	Robert Hall.....	Davies & Co.
Oahu Sugar Co.....	Waipahu, Oahu....	E. K. Bull.....	Hackfeld & Co.
Olaa Sugar Co.....	Olaa, Hawaii.....	Ino. Watt.....	Bishop & Co.
Olowalu Sugar Co....	Olowalu, Maui....	Geo. Gibb.....	Irwin & Co.
Onomea Sugar Co....	Hilo, Hawaii.....	John T. Moir.....	Brewer & Co.
Ookala Sugar Co....	Ookala, Hawaii....	W. G. Walker....	Brewer & Co.
Paaupau S. Plant. Co.	Hamakua, Hawaii.	Jas. Gibb.....	Irwin & Co.
Pacific S. Mill (†)...	Hamakua, Hawaii.	D. Forbes.....	Schaefer & Co.
Pepeekeo Sugar Co..	Hilo, Hawaii.....	Jas. Webster.....	Brewer & Co.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands—Continued.

NAME.	LOCATION.	MANAGER.	AGENTS.
Pioneer Mill Co., Ltd.	Lahaina, Maui.	L. Barkhausen.	Hackfeld & Co.
Puakea Plant'n Co.*	Kohala, Hawaii.	H. R. Bryant.	Davies & Co.
Puako Plantation	S. Kohala, Haw.	J. C. Searle.	Hind, Rolph & Co.
Union Mill Co.	Kohala, Hawaii.	H. H. Renton.	Davies & Co.
Waiakea Mill Co.	Hilo, Hawaii.	C. C. Kennedy.	Davies & Co.
Waialua Agrl. Co.	Waialua, Oahu.	W. W. Goodale.	Castle & Cooke
Waianae Plantation.	Waianae, Oahu.	Fred Meyer.	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui.	C. B. Wells.	Brewer & Co.
Waimanalo S. Co.	Waimanalo, Oahu.	Geo. Chalmers.	Irwin & Co.
Waimea Sug. M. Co.	Waimea, Kauai.	Jno. Fassoth.	Castle & Cooke

Championship Races of the Honolulu Rowing Association.

In the Annual contests between the Myrtle and Healani Clubs. One and a half mile straight-away course, Pearl Harbor.

SENIOR CREWS.			JUNIOR CREWS.	
Year.	Winner.	Time.	Winner.	Time.
1896.	Myrtle	10.03	Myrtle	10.21
1897.	Myrtle	9.48	Myrtle	10.29 1/4
1898.	Healani	10.05 2/5	Healani	10.14 2/5
1899.	Myrtle	11.00	Myrtle	10.43
1900.	Healani	10.14	Myrtle	11.14
1891.	Healani	10.37 1/2	Healani	11.24
1902.	Myrtle	10.30 3/5	Myrtle	10.31
1903.	Healani	10.05 2/5	Healani	10.16
1904.	Myrtle	10.48 1/2	Myrtle	11.04 2/5
1905.	Myrtle	10.34 4/5	Myrtle	10.40
1906.	Myrtle	10.23	Myrtle	10.29 3/5

Challenge Cup Races, Hawaiian Rowing and Yachting Association.

1. Won by yacht Healani, July 4, 1889.
 2. Won by yacht Hawaii, July 4, 1890.
 3. Won by yacht Healani, July 4, 1891.
 4. Won by yacht Bonnie Dundee, July 4, 1892.
 5. Won by yacht Gladys, September 13, 1899.
- Not competed for since.

HAWAIIAN SUGAR CROPS IN TONS, 1901-1906.

From Table Prepared for Hawaiian Planters' Association, by
W. O. Smith, Secretary.

[Earlier years from 1891 can be found in the Annual for 1901.]

ISLANDS.	1901	1902	1903	1904	1905	1906
Production of Hawaii.....	134,618	121,295	170,665	122,865	126,405	137,250
" Maui.....	58,349	56,726	83,776	77,985	100,434	102,960
" Oahu.....	99,534	107,870	121,066	102,919	123,095	113,750
" Kauai.....	67,537	69,720	61,484	64,606	76,314	74,753
Grand Total	360,038	355,611	437,991	367,475	426,248	429,213
HAWAII PLANTATIONS.						
Waiakea Mill Co.....	10,800	8,700	9,954	6,151	7,661	10,766
Hawaii Mill Co.....	843	985	1,503	1,728	1,438	1,825
Hilo Sugar Co.....	10,214	9,255	13,108	7,701	9,971	11,751
Onomea Sugar Co.....	8,722	11,880	13,472	10,940	11,049	13,930
Pepeekeo Sugar Co.....	7,173	6,627	6,000	4,907	6,167	6,477
Honomu Sugar Co.....	4,401	6,235	6,384	5,489	5,909	5,852
Hakalau Plantation Co.....	10,932	11,700	11,293	8,396	10,862	12,869
Laupahoe Sugar Co.....	5,504	7,909	4,856	4,336	5,866	7,864
Ookala Sugar Plntn. Co.....	4,968	1,157	3,942	2,214	3,712	3,223
Kukaiiau Plantation Co.....	2,000	1,118	1,746	1,275	1,415	2,154
Kukaiiau Mill Co.....	2,000	1,118	1,646	1,274	1,416	1,435
Hamakua Mill Co.....	7,808	2,105	6,950	4,691	5,925	6,358
Pauhau Sugar Plntn. Co.....	9,635	1,322	9,136	7,533	8,006	8,795
Honokaa Sugar Co.....	9,903	3,089	8,587	7,402	6,895	7,940
Pacific Sugar Mill.....	4,948	2,517	6,059	3,388	4,342	4,331
Niulii Mill and Plantation.....	1,516	1,146	1,903	1,189	1,645	2,226
Halawa Plantation.....	1,357	575	1,860	1,016	925	1,036
Kohala Sugar Co.....	3,160	1,096	5,409	2,663	3,350	3,300
Union Mill Co.....	2,003	463	3,380	1,776	2,166	2,570
Hawi Mill.....	2,727	1,373	5,563	3,631	3,687	4,389
Beecroft Plantation.....	325					
Kona Sugar Co.....	1,500	1,391	1,850	897		
Hutchinson Sugar Plntn. Co.....	9,928	8,021	7,527	5,741	7,107	6,940
Hawaiian Agricul. Co.....	10,956	11,998	18,888	10,954	1,620	826
Puakea Plantation.....	145	307	366	201	262	398
Olaa Sugar Co.....	1,150	16,748	15,030	13,788	11,361	9,405
Puna Sugar Co.....		2,460	3,603	3,146	3,147	867
Puako Plantation.....			550	438	500	223
	134,618	121,295	170,655	122,865	126,405	137,750

HAWAIIAN SUGAR CROPS, 1901-1906—Continued.

MAUI PLANTATIONS.	1901	1902	1903	1904	1905	1906
Kipahulu Sugar Co.....	1,992	1,427	1,622	1,415	1,324	1,464
Hamoia Plantation Co.....	1,450	1,748				
Hana Plantation Co.....	2,774	2,700	4,922	2,662	2,720†	850
Haiku Sugar Co.....	5,488	4,234	6,397	*		
Paia Plantation.....	7,216	4,146	7,856	13,521	17,820	19,861
Hawaiian Coml & Sug Co..	22,345	19,477	33,230	29,829	39,411	43,652
Wailuku Sugar Co.....	7,902	5,934	7,490	6,451	7,516	7,828
Olowalu Co.....	1,240	1,055	843	1,125	1,652	1,635
Pioneer Mill Co., Ltd.....	6,568	9,960	16,530	17,036	25,581	22,509
Kihei Plantation Co., Ltd..	1,374	5,562	5,629	5,461	4,410	5,161
Maui Sugar Co.....		483	257	485		
	58,349	56,726	84,776	77,985	100,434	102,960
OAHU PLANTATIONS.						
Waimanalo Sugar Co.....	3,045	2,985	3,218	2,963	3,428	4,148
Heeia Agricul. Co., Ltd..	1,507	631				
Laie Plantation.....	1,693	430	724	597	857	1,112
Kahuku Plantation Co.....	7,072	5,623	8,212	6,360	7,431	6,689
Waialua Agricultural Co..	17,699	17,001	19,800	18,682	19,722	20,788
Waianae Co.....	4,020	5,000	5,348	5,500	5,128	5,490
Ewa Plantation Co.....	33,036	38,775	33,162	29,797	32,380	29,302
Apokaa Sugar Co.....		901	610	874	454	865
Oahu Sugar Co.....	21,454	26,724	29,256	20,870	33,589	26,710
Honolulu Plantation Co...	10,008	9,800	20,736	16,376	20,106	18,646
	99,534	107,870	121,066	102,019	123,095	113,750
KAUAI PLANTATIONS.						
Kilauea Sugar Plntn Co..	5,364	3,672	3,012	1,850	2,290	2,700
Makee Sugar Co.....	9,954	11,232	8,215	7,840	8,335	7,986
Lihue Plantation Co.....	18,356	13,674	11,375	14,611	14,185	16,005
Grove Farm Plantation...	2,183	2,915	1,896	1,679	1,679	1,933
Koloa Sugar Co.....	5,492	5,001	4,825	6,172	6,172	5,570
McBryde Sugar Co.....	2,208	9,113	11,922	10,535	13,136	11,024
Hawaiian Sugar Co.....	13,419	11,480	10,324	11,493	19,062	18,616
Gay & Robinson.....	1,554	2,265	1,645	1,665	2,151	2,099
Waimea Sugar Mill Co.....	919	565	540	627	1,305	1,550
Kekaha Sugar Co.....	7,412	8,978	7,064	7,447	7,318	6,626
Estate of V. Knudsen.....	676	735	666	687	680	644
Total	67,537	69,720	61,484	64,606	76,314	74,753

*The Haiku Sugar Co., and Paia Plantation now comprise the Maui Agricultural Co.

†The Hana Plantation changes in name to the Kaeleku Plantation Co.

POSTAL SERVICE, TERRITORY OF HAWAII.

Corrected to December 10, 1906.

Frank J. Hare, Inspector in Charge.

Geo. W. Carr, Asst. Sup't. Railway Mail Service.

Jos. G. Pratt, Postmaster.

Jno. T. Stayton, Asst. Postmaster; Wm. McCoy, Chief Registry Clerk; F. E. Colby, Chief Money Order Clerk; W. C. Kenake, Chief Mailing Clerk; F. T. Sullivan, Supt. of Delivery.

POSTMASTERS ON HAWAII.

Hilo	Geo. Desha	Keauhou....	Mrs. H. L. Kawewehi
Pepeekeo	E. N. Deyo	Holualoa.....	L. S. Aungst
Honolulu	Wm. Hay	Kailua.....	John P. Curtis
Kawaihae	J. Laau	Kealahou.....	Miss M. Wassman
Mahukona	R. R. Elgin	Napoo.....	R. Wassman
Kukuihaele	W. Horner	Hoopulohia.....	D. L. McIlkuli
Pauulu	Jas. Gibb	Honokaa.....	S. L. Aungst
Kamuela	Moses Koki	Pahala.....	T. C. Wills
Kohala	Miss M. R. Woods	Honouliuli.....	C. P. Akamu
Pauulu	Anthony Lidgate	Waiohinu.....	Anna H. McCarthy
Laupahoehoe.....	E. W. Barnard	Naalehu	Carl Wolters
Ookala	W. G. Walker	Hakalau	Wm. Ross
Honokaa	A. B. Lindsay	Olaa	John Watt
Mountain View.....	E. L. Rackliff	Papaaloa.....	Alfred C. Palfrey
Kalapana	Dan'l Kaloi	Lalamilo.....	J. C. Searle
Volcano House.....	D. Lycurgus		

POSTMASTERS ON MAUI.

Lahaina	Arthur Waal	Honokohau	R. C. Searle
Kaanapali	Franz Stark	Kipahulu	A. Gross
Wailuku	L. M. Vetleson	Kahului	R. W. Filler
Makawao	A. F. Tavares	Paia	D. C. Lindsay
Hana	N. Omsted	Hamakuapoko....	W. F. Mossman
Huelo	Wm. F. Pogue	Haiku	Jas. Lindsay
Puunene	H. P. Baldwin	Peahi	Geo. Groves
Kaupo	A. V. Marciel	Keanae.....	J. W. K. Halemano
Makena.....	D. Kapohakukimohewa	Waiahoia	Joaquin Vincent
Kihei	Jas. Scott	Keokea	L. C. Akana

POSTMASTERS ON OAHU.

Aiea	James A. Low	Waimanalo	A. Irvine
Pearl City.....	J. P. Keppler	Kahuku	Andrew Adams
Ewa	Geo. F. Renton	Heeia	Frank Pahia
Waipahu.....	J. H. Travis	Wahiawa.....	L. G. Kellogg
Waianae	F. Meyer	Haleiwa.....	St. Clair Bidgood
Waialua	W. W. Goodale	Waikane	Sam'l Waiwi
Laie	S. Kekauoha		

POSTMASTERS ON KAUAI.

Lihue	Frank Crawford	Kealia	Jno. W. Neal
Koloa	H. W. Schmidt	Kilauea	F. Scott
Hanapepe	H. H. Brodie	Kekaha	J. W. Kutz
Makaweli	B. D. Baldwin	Waimea	C. B. Hofgaard
Eleele	Mrs. J. I. Silva	Hanalei	N. F. Sanborn

POSTMASTERS ON MOLOKAI AND LANAI.

Kamalo	D. McCorrison	Halawa	M. H. Kane
Pukoo	D. K. Ilae	Keomoku	Chas. Gay
Kalae	Ellen Sobey	Kalaupapa	J. S. Wilmington
Pelekunu	J. Kapahu	Kaunakakai	F. Minamina

POST OFFICE INFORMATION.

Office hours of the General Delivery are from 6 a. m. to 12 o'clock midnight. On legal holidays the time is from 8 a. m. to 9 a. m. On Sundays, from 9 to 10 a. m.

Hours of the Stamp and Registry Departments are from 8 a. m. to 6 p. m., and of the Money Order Department from 9 a. m. to 5 p. m.

The General Delivery is open (except Sundays and holidays) from 6 a. m. till midnight, for the delivery of mail, registering of letters and issuance of Money Orders.

Inter-Island mails close forty-five minutes before the sailing of steamers. For foreign ports the ordinary mails close one hour prior to steamers' departure.

RATES OF POSTAGE, DOMESTIC.

First class matter (letters, etc.)	2 cents per oz. or fraction
Second class (newspapers and periodicals)	1 cent per 4 oz. or fraction
Third class (books, circulars)	1 cent per 2 oz. or fraction
Fourth class (merchandise—limit of weight 4 lbs.)	
.....	1 cent per oz. or fraction
Registration Fee (additional postage)	8 cents
Immediate Delivery Stamp (additional to postage)	10 cents
Postal Cards	1 cent each

FOREIGN POSTAGE.

The rate to all foreign countries except Canada and Mexico are: Letters—per half ounce or fractional part, 5 cents; second and third class matter, 1 cent for each 2 ounces or part. Postal Cards, 2 cents each.

Parcels of Merchandise, 12 cents per pound. Limit of weight, 11 pounds.

COURT CALENDAR.

The several terms of Circuit Court are held chronologically throughout the year as follows:

First Mondays in January, April and September, in the city of Honolulu, Island of Oahu; second Wednesdays in March, June and October, in Wailuku, Island of Maui; fourth Wednesday in April in the town of Kailua, N. Kona, and fourth Wednesdays in April and July, in Kohala, Island of Hawaii; third Wednesdays in February, May and November, in the town of Hilo, and fourth Thursday of November in Waiohinu, Island of Hawaii.

By Circuits the several terms are held as follows:

First Circuit—Island of Oahu.

On the first Mondays of January, April and September.

Second Circuit—Island of Maui.

On the second Wednesdays of March, June and October, in Wailuku.

Third Circuit—Island of Hawaii.

(Hawaii is divided into two Circuits).

On the fourth Wednesday of April in Kailua, N. Kona, and on the fourth Wednesdays of April and July, in North Kohala, and fourth Thursday of November, in Waiohinu.

Fourth Circuit—Island of Hawaii.

On the third Wednesdays of February, May and November, in Hilo, on the third Wednesday of August, in Honokaa.

Fifth Circuit—Island of Kauai.

On the fourth Wednesdays of March, July and December, in Lihue.

The term of the Second, Third and Fifth Circuit Courts may be continued and held from the opening thereof, respectively until and including the twenty-fourth day thereafter, excepting Sundays and legal holidays. Provided, however, that any such term may be extended by the presiding judge for not more than twelve days thereafter.

Terms in First and Fourth Circuits may extend until the commencement of succeeding ones, but the April term of the First Circuit must not go beyond the last Saturday in June.

SUPREME COURT.

The Supreme Court, by Act 22, Laws of 1901, opens its only term throughout the year on the first Monday of October, and thereafter continues to hold sessions.

REFERENCE LIST OF PRINCIPAL ARTICLES.

That have appeared in the Hawaiian Annuals, 1875-1906.

[In consequence of frequent inquiry for various articles that have appeared in the Annuals, their time of issue, etc., we have classified the principal articles under their respective subjects for handy reference.—Editor.]

AGRICULTURAL.

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History of Coffee Culture in Hawaiian Islands, by T. G. T., 1876, p. 46;
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- Fifty Years of Hawaiian Commercial Development, by T. G. T., 1894, p. 58.
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BOARD OF MARINE UNDERWRITERS—AGENCIES.

Boston C. Brewer & Co.
 Philadelphia C. Brewer & Co.
 New York Bruce Cartwright
 Liverpool Theo. H. Davies & Co.
 Lloyds, London Theo. H. Davies & Co.
 San Francisco Bishop & Co.
 Bremen F. A. Schaefer

BOARD OF FIRE UNDERWRITERS OF TERRITORY OF HAWAII.

F. A. Schaefer President
 J. A. Gilman Vice-President
 A. R. Gurrey Secretary
 Bishop & Co. Treasurer
 H. Hackfeld & Co. Auditor

PACKET AGENCIES.

Brewer Line N. Y. Packets—Theo. H. Davies & Co., Ltd.
 Planters' Line, San Francisco—C. Brewer & Co., Ltd., and Castle & Cooke, Ltd.
 Canadian and Australian S. S. Line—Theo. H. Davies & Co., Ltd.
 Oceanic S. S. Co.'s Line—W. G. Irwin & Co., Ltd.
 On Yushen Kaisha, Japan to Seattle—W. G. Irwin & Co., Ltd.
 Pacific Mail S. S. Co.—H. Hackfeld & Co., Ltd.
 Occidental and Oriental S. S. Co.—H. Hackfeld & Co., Ltd.
 Bremen Packets—H. Hackfeld & Co., Ltd.
 Liverpool Packets—H. Hackfeld & Co., Ltd.
 Hawaiian Packet Line San Francisco—H. Hackfeld & Co., Ltd.
 American-Hawaiian S. S. Co.—H. Hackfeld & Co., Ltd.
 San Francisco and Honolulu—F. A. Schaefer & Co., Ltd.
 Alexander & Baldwin Line, San Francisco—Alexander & Baldwin, Ltd.

CHAMBER OF COMMERCE.

President W. M. Giffard
 Vice-President J. F. Morgan
 Secretary and Treasurer H. P. Wood
 Trustees—E. I. Spalding, F. M. Swansy, W. Pfotenhauer, L. T. Peck, J. R. Galt, Alex. Garvie, G. W. Smith, E. E. Paxton, W. A. Bowen.

MERCHANTS' ASSOCIATION.

Organized March 18, 1901.

President Geo. W. Smith
 Vice-President Robt. Catton
 Secretary E. H. Paris
 Treasurer W. W. Harris
 W. T. Lucas, A. Gartley, W. F. Dillingham, and G. J. Waller, with the officers, form the Directors.

HAWAII PROMOTION COMMITTEE.

Representing the
 Territory of Hawaii, Chamber of Commerce and Merchants' Ass'n.

Organized 1903.

J. A. McCandless, Chairman; J. F. Morgan, A. Gartley, F. L. Waldron, F. C. Smith, H. P. Wood Secretary

CIVIC FEDERATION.

Organized Jan. 26, 1905.

President W. R. Castle
 1st Vice-President F. B. McStocker
 2nd Vice-President R. H. Trent
 Secretary Ed Towse
 Treasurer C. H. Dickey

HAWAIIAN ENGINEERING ASSOCIATION.
Organized 1902.

Chairman Edward C. Brown
 Vice-Chairman C. G. Ballentyne
 Seiretary E. G. Keen
 Treasurer T. H. Petrie
 Directors—Oahu, A. Gartley, G. F. Bush, E. Kopke.
 Maui, J. N. S. Williams.
 Hawaii, A. W. Keech.
 Kauai, Norman Greig.

HONOLULU STOCK AND BOND EXCHANGE.

Organized August 8, 1898.

President H. Armitage
 Vice-President W. E. Brown
 Secretary R. W. Shingle
 Treasurer Bank of Hawaii

HAWAIIAN SUGAR PLANTERS' ASSOCIATION.

Re-organized Nov. 18, 1895.

President E. F. Bishop
 Vice-President F. A. Schaefer
 Secretary and Treasurer W. O. Smith
 Auditor G. H. Robertson
 Trustees—E. D. Tenney, W. G. Irwin, S. M. Damon, F. A. Schaefer, F. M. Swansy, H. P. Baldwin, W. O. Smith, W. Pfotenhauer, E. F. Bishop.

EXPERIMENT STATION OF PLANTERS' ASSOCIATION.

Committee in Charge—W. M. Giffard (Chairman), E. D. Tenney and E. E. Paxton.
 Experiment Station Staff—Agricultural and

Chemical Division.

Director and Chemist C. F. Eckart
 Agriculturist E. G. Clarke
 First Assistant Chemist S. S. Peck
 Assistant Chemists F. R. Werthmuller, A. E. Jordan
 Field Foreman T. Lougher

Entomological Division.

Director R. C. L. Perkins
 Consulting Entomologists—A. Koebele, Alex. Crow.
 Assistant Entomologists—G. W. Kirkaldy, F. W. Terry, Otto H. Swezey, F. Muir.

Pathological and Physiological Division.

Director N. A. Cobb
 Assistant Director L. Lewton-Brain
 Assistant E. M. Grosse

General.

Illustrator W. E. Chambers
 Cashier C. H. McBride

LIVE STOCK BREEDERS' ASSOCIATION.

Organized March 17, 1902.

President A. F. Judd
 Vice-President A. W. Carter
 Secretary A. M. Brown
 Treasurer R. W. Shingle
 Ex. Com.—E. P. Low, L. von Tempsky,
 E. A. Knudsen, J. F. Brown, H. M. von
 Holt.

THE FARMERS' INSTITUTE.

Organized Jan. 25, 1902.

President Jared G. Smith
 Secretary F. G. Krauss
 Treasurer J. E. Higgins

HOOULU LAHUI SOCIETY.

Organized, 1878.

President Mrs. D. Kawananakoa
 Vice-President D. Kawananakoa
 Secretary Mrs. Manuel Reis
 Treasurer Mrs. J. M. Dowsett

PORTUGUESE CHARITABLE SOCIETY.

Organized Sept. 1, 1902.

President J. P. Rodriguez
 Vice-President J. Madeira
 Secretary A. H. R. Viera
 Treasurer J. A. R. Viera

JAPANESE BENEVOLENT SOCIETY.

President Rev. G. Motokawa
 Vice-President D. Yonekura
 Secretary Y. Mikami
 Treasurer G. Nakamura

CATHOLIC LADIES' AID SOCIETY.

President Mrs. J. J. Sullivan
 Vice-Presidents Mrs. M. Cowes and Mrs. Jno. McVeigh
 Secretary Miss Alice Dougherty
 Treasurer Mrs. C. du Roi

LIBRARY AND READING ROOM ASSOCIATION.

Organized March. Incorporated June 24, 1879.

President W. D. Alexander
 Vice-President M. M. Scott
 Secretary E. W. Campbell
 Treasurer W. C. Parke
 Librarian Miss G. E. Baker

HAWAIIAN HISTORICAL SOCIETY.

Organized Jan. 11, 1892. Annual Meeting November.

President Dr. W. D. Alexander
 Vice-Presidents—Rev. Alex. Mackintosh, J.
 S. Emerson, Hon. A. S. Hartwell.

Recording Secretary Hon. W. F. Frear
 Cor. Secretary Wm. A. Bryan
 Treasurer W. W. Hall
 Librarian Miss H. Hillebrand

BERNICE PAUAAHI BISHOP MUSEUM.

Board of Trustees.

Sanford B. Dole President
 William O. Smith Vice-President
 Alfred W. Carter Secretary
 Joseph O. Carter Treasurer
 Henry Holmes, Samuel M. Damon, E. F.
 Bishop.

Museum Staff.

William T. Brigham, A. M., D. Sc. Director
 Wm. D. Hall, D. Ph. Hon. Curator of Molusca
 Wm. A. Bryan, B. Sc. Curator of Ornithology
 John F. G. Stokes Curator of Polynesian Ethnology
 Leopold G. Blackman Assistant and Acting Librarian
 C. Montague Cooke, Jr., D. Ph. Assistant
 John J. Greene Printer

KILOHANA ART LEAGUE.

Organized May 5, 1894.

President D. Howard Hitchcock
 Vice-President Mrs. W. M. Graham
 Secretary and Treasurer Mrs. L. G. Marshall
 Auditor Percy Pond
 Directors Mrs. H. M. von Holt, Miss Parke

HAWAIIAN MEDICAL ASSOCIATION.

Organized May 24, 1895. Annual Meeting in May.

President Dr. A. G. Hodgins
 Vice-President Dr. A. N. Sinclair
 Secretary and Treas. Dr. F. H. Humphries
 Drs. H. V. Murray, E. S. Armitage, with the
 above officers, constitute the Executive
 Committee.

DENTAL SOCIETY OF HAWAII.

Organized May, 1903.

President Dr. C. B. High
 Vice-President Dr. O. E. Wall
 Secretary Dr. F. E. Clark
 Treasurer Dr. E. L. Hutchinson

HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION.

Organized June 17, 1895.

President John Effinger
 Vice-President L. A. Thurston
 Secretary and Treas. L. A. Dickey
 Registrar S. M. Ballou

ALOHA CHAPTER DAUGHTERS OF THE AMERICAN REVOLUTION.

Organized

Regent Mrs. W. W. Hall
Secretary Miss S. L. Byington
Registrar Mrs. J. W. Girvin

BAR ASSOCIATION OF HAWAII.

Organized June 28, 1899.

President W. L. Stanley
Vice-President S. M. Ballou
Secretary R. B. Anderson
Treasurer W. L. Whitney
Auditor W. C. Parke

QUEEN'S HOSPITAL.

Elected in 1860.

President The Governor
Vice-President F. A. Schaefer
Secretary Geo. W. Smith
Treasurer W. W. North
Auditor M. P. Robinson
Physicians..... Drs. W. Hoffman, Jas. R. Judd
Resident Physician..... Dr. Wm. Osmer
Intern Dr. H. Haynes
Oculist and Aurist..... Dr. W. G. Rodgers
Superintendent J. F. Eckart
Matron Mrs. E. J. Willcock
Executive Committee—A. S. Cleghorn, F. A. Schaefer, Geo. W. Smith, W. H. McInerny, H. F. Wichman.

LEAHI HOME.

Organized April 4, 1900.

President Alex. Young
Vice-Presidents—W. O. Smith, C. H. Atherton.
Secretary T. Clive Davies
Treasurer A. W. T. Bottomley
Auditor J. P. Cooke
Medical Supt. A. N. Sinclair, M. B. C. M.
Asst. Supt. H. Taylor
Matron Mrs. H. Taylor
Trustees—Alex. Young, J. P. Cooke, C. H. Atherton, T. Clive Davies, A. W. T. Bottomley, W. O. Smith.

SAILORS' HOME SOCIETY.

Organized 1853. Meets annually in December.

President F. A. Schaefer
Vice-President T. Clive Davies
Secretary C. H. Atherton
Treasurer W. W. Hall
Executive Committee—W. W. Hall, A. Fuller, J. A. Kennedy.
Supt. of Home.....

HAWAIIAN EVANGELICAL ASSOCIATION.

Originally Organized 1823.

Constitution revised 1863. Annual Meeting June.

President P. C. Jones
Vice-President W. W. Hall
Corresponding Secretary
..... Doremus Scudder, D. D.
Rec. Secretary..... Rev. W. D. Westerveit
Treasurer Theo. Richards
Auditor F. C. Atherton

WOMAN'S BOARD OF MISSIONS.

Organized 1871.

President Mrs. D. Scudder
Recording Secretary..... Miss M. L. Sheeley
Home Cor. Secretary..... Mrs. J. D. Marques
Foreign Cor. Secretary..... Mrs. A. F. Judd
Treasurer Mrs. B. F. Dillingham
Asst. Treasurer..... Mrs. W. L. Moore
Auditor W. W. Hall

MISSION CHILDREN'S SOCIETY.

Organized 1851. Annual Meeting in June.

President C. H. Cooke
Vice-President A. F. Judd
Secretary Mrs. R. W. Andrews
Recorder R. W. Andrews
Treasurer L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting in April.

President F. C. Atherton
Vice-President Geo. S. Waterhouse
Rec. Secretary W. L. Whitney
Treasurer C. H. Atherton
General Secretary..... Paul Super
Physical Instructor..... Dr. E. H. Hand

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

President Mrs. E. W. Jordan
Vice-President..... Mrs. B. F. Dillingham
Secretary (Acting)..... Mrs. C. Montague Cooke
Treasurer Mrs. B. L. Marx
General Secretary..... Miss C. O. Moyer

WOMAN'S CHRISTIAN TEMPERANCE UNION OF HAWAII.

Organized December, 1884.

President Mrs. J. M. Whitney
Vice-Presidents—Mrs. D. Scudder, Mrs. P. C. Jones.
Recording Secretary——Mrs. C. H. Austin
Cor. Secretary..... Mrs. E. W. Jordan
Treasurer Mrs. Lydia Coan
Auditor W. A. Bowen

FREE KINDERGARTEN AND CHILDREN'S AID ASSOCIATION.

Organized 1895.

President Mrs. E. B. Waterhouse
 Vice-Presidents—Mrs. S. B. Dole, Mrs. F. J. Lowrey, Mrs. Theo. Richards.
 Recording Secretary
 Treasurer Mrs. F. M. Swanzy
 Financial Secretaries—Miss M. Hopper and Mrs. W. F. Frear.
 Auditor W. L. Howard

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President S. B. Dole
 1st Vice-President Rev. A. Mackintosh
 2nd Vice-President Mrs. C. du Roi
 Secretary Mrs. J. M. Whitney
 Treasurer John Waterhouse
 Manager Mrs. E. F. Berger

AMERICAN RELIEF FUND.

Organized 1864. Meets annually Feb. 22.

President Robt. Lewers
 Vice-President W. W. Hall
 Secretary and Treasurer W. O. Atwater

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting in June.

President Mrs. A. Fuller
 Vice-Presidents—Mrs. S. B. Dole, Mrs. E. F. Bishop.
 Secretary Mrs. S. M. Damon
 Treasurer Mrs. E. W. Jordan
 Auditor E. W. Jordan

BRITISH BENEVOLENT SOCIETY.

Organized 1869. Meets Annually.

President (Ex-officio) H. B. M'a Consul
 Vice-President Rev. A. Mackintosh
 Secretary R. Catton
 Treasurer George Davies
 Relief Committee—G. R. Ewart, J. C. Cook, W. H. Baird, F. Harrison, R. Anderson and H. E. McIntyre, with the above officers, comprise the committee.

GERMAN BENEVOLENT SOCIETY.

Organized August 22, 1856.

President F. A. Schaefer
 Vice-President W. Pfotenhauer
 Secretary John F. Eckart
 Treasurer B. von Damm
 Auditor H. J. Nolte

HAWAIIAN RELIEF SOCIETY.

Organized 1895.

President Mrs. C. S. Holloway
 Secretary Mrs. E. S. Cunha
 Treasurer Mrs. F. W. Macfarlane

HOSPITAL & LOWER MISSION.

President Mrs. E. W. Jordan
 Vice-President Mrs. A. F. Judd
 Secretary Mrs. G. F. Davies
 Treasurer Miss von Holt
 Auditor E. W. Jordan

OAHU COLLEGE ASSOCIATION.

President A. S. Cleghorn
 Vice-President F. J. Lowrey
 Secretary D. Dayton
 Treasurer J. R. Galt

ANTI-SALOON LEAGUE OF HONOLULU.

T. H.

Organized March 4, 1901.

President Rev. J. W. Wadman
 Vice-President Mr. W. A. Bowen
 Vice-Pres. Honorary Mrs. J. M. Whitney
 Secretary Rev. E. B. Turner
 Treasurer Rev. W. D. Westervelt

PACIFIC (FORMERLY BRITISH) CLUB.

Organized 1852. Premises on Alakea Street, two doors below Beretania.

President A. S. Cleghorn
 Vice-President Godfrey Brown
 Secretary Jas. G. Spencer
 Treasurer J. M. Dowsett
 Governors—H. M. Whitney, F. Klamp, A. A. Wilder, L. E. Pinkham and R. Ivers, with the above officers, comprise the Board.

UNIVERSITY CLUB.

Organized 1905.

President Hon. A. S. Hartwell
 Vice-President A. Gartley
 Secretary S. M. Ballou
 Treasurer D. W. Anderson

COMMERCIAL CLUB OF HONOLULU.

Organized Aug. 30, 1906.

President Geo. W. Smith
 Secretary E. H. Paris
 Treasurer R. H. Trent

SCOTTISH THISTLE CLUB.

Organized April 27, 1891.

Chief J. L. Cockburn
 Chieftain Jas. F. Fenwick
 Secretary John Macauley
 Treasurer John H. Catton
 Master-at-Arms J. M. Mackinnon
 Club Room, Oregon Building, Union Street,
 Meeting on Friday, 7:30 p. m.

BUCKEYE CLUB.

Organized 1904.

President Raymond C. Brown
 Vice-President S. B. Kingsbury
 Sec. and Treas. C. H. Dickey

YOUNG HAWAIIAN'S INSTITUTE.

Organized August 10, 1894.

President Geo. H. Huddy
 Vice-President C. A. Long
 Recording Secretary Man'l K. Cook
 Treasurer N. Fernandez
 Marshal J. A. Aheong
 Executive Committee—Geo. L. Deaha, David
 Kanuha and J. K. Kamanoulu.
 Meets 1st and 3rd Thursdays each month,
 in Kapiolani Building.

HONOLULU SYMPHONY SOCIETY.

President B. L. Marx
 Vice-President H. F. Wichman
 Secretary C. S. Deskey
 Treasurer J. Lightfoot
 Mail Carl Mett
 Directors—Dr. W. L. Moore, Dr. W. Hoff-
 man.

YOUNG MEN'S RESEARCH CLUB.

Organized

President C. G. Owens
 Vice-President W. C. Parke
 Sec. and Treas. I. H. Beadle

OAHU POLO CLUB.

President Jno. L. Fleming
 Vice-President Geo. P. Dennison
 Secretary Gerrit P. Wilder
 Treasurer C. H. Cooke
 Captain Geo. H. Angus
 Directors—The above officers and Harold
 Dillingham.

HONOLULU CHESS CLUB.

Organized

President S. M. Ballou
 Secretary and Treasurer
 Membership Committee—H. E. Cooper, J.
 Rosenstein, Alex. G. Hawes, Jr.

HAWAIIAN RIFLE ASSOCIATION.

Organized Dec., 1885; revived 1905. (Affiliated with National Rifle Ass'n.)

President Jno. G. Rothwell
 Vice-President John Kidwell
 Secretary P. H. Burnett
 Treasurer Q. H. Berrey
 Executive Officer J. H. Fisher

HAWAII YACHT CLUB.

Organized Oct. 1901.

Commodore H. E. Cooper
 Vice-Commodore Alex. Lyle
 Secretary and Treas. T. H. Petrie
 Mensurer O. L. Sorenson
 Captain E. Jaeger
 Regatta Com.—E. O. White, W. H. Mc-
 Inerny, C. T. Wilder.
 Directors—T. W. Hobron, C. W. Macfarlane,
 W. H. Crozier, G. F. Renton.

MYRTLE BOAT CLUB.

Organized Feb. 5, 1883.

President W. W. Harris
 Vice-President W. H. Soper
 Secretary J. F. Soper
 Treasurer W. C. Parke
 Captain T. V. King
 Trustees—Geo. Crozier, W. H. Soper.

HEALANI YACHT AND BOAT CLUB.

Incorporated Dec., 1894.

President C. L. Crabbe
 Vice-President F. B. Damon
 Secretary F. Hatch
 Treasurer C. C. Rhodes
 Captain A. S. Walker
 Vice-Captain F. H. Armstrong
 Commodore Merle Johnson
 Vice-Commodore R. McCorriston
 Auditor C. P. Marques

HAWAIIAN ROWING ASSOCIATION.

President A. L. C. Atkinson
 Vice-President Geo. Crozier
 Secretary and Treasurer C. C. Rhodes
 Regatta Committee—C. C. Rhodes, M. M.
 Johnson and T. V. King.

OAHU COLLEGE.

President—Arthur F. Griffiths, A. B., History
 and Economics.
 Catherine Merrill Graydon English
 Wilbur J. MacNeil—Chemistry and Natural
 Sciences.
 John S. Reed—Mathematics.
 Catherine E. B. Cox—Greek and History.
 Levi Cassius Howland, Sarah N. Ward—
 Commercial Department.
 Ethel D. Shaw, Anna Luise Haasforth—Ger-
 man-English.
 Chas. T. Fitts—Latin.
 Mary C. Alexander—English.
 Charlotte P. Dodge—Science and Mathe-
 matics.
 Mabel H. Black—Rhetoricals.
 Fredk. Hastings—Director of Music.
 Gertrude K. Brown—Instructor in Piano.
 D. Howard Hitchcock—Art Drawing.
 Mrs. A. B. Ingalls—Instructor on Violin.
 Frank L. Hadley—Manual Training.

Mary L. Bettis, Olive J. Bettis, Mabel H. Black—Matrons.
Helen R. Girvin—Librarian.
Jona. Shaw—Business Manager.
Frank Barwick—Supt. of Grounds.
James R. Judd M. D.—Medical Examiner.
Eunice C. Pratt, Marion L. Greene, Jas. P. Winne—Assistants.

PUNAHOU PREPARATORY.

Principal—Saml. P. French.
Emogene Hart—Eighth Grade.
Mrs. W. J. MacNeil—Seventh Grade.
Mary Grav Borden—Sixth Grade.
Anna F. Johnson, Isabel Gregg—Fifth Grade.
E. A. B. Turner—Fourth Grade.
Florence N. Carter—Third Grade.
Mary Persis Winne—Vice-Principal, Second Grade.
Lawrence K. French—Substitute Teacher.
Claire H. Uecke—Kindergarten Director.
A. B. Stephen, Clara F. Hemenway—Assistants.

KAWAIAHAO GIRLS' SEMINARY.

Miss Katheryn C. McLeod—Principal.
Assistants—Misses Colwell, Edna Skinner, Nellie Waddington, A. P. Mahony.
Teacher of Music—Miss J. Winne.
Matron—Miss E. B. Cunningham.
General Assistant—Miss Esther Kalino.

THE KAMEHAMEHA SCHOOLS.

Officers of Administration.
Perley L. Horne—President.
Uldrick Thompson—Vice-Principal.
John Lloyd Hopwood—Chaplain.
.....—Registrar and Business Agent.
John Anderson—Assistant Registrar and Business Agent.
E. C. Waterhouse, M. D.—Physician.
A. Pope—Principal Girls' School.
Alice E. Knaab—Preparatory Department School for Boys.

FACULTIES.

School for Boys' Manual Department.
Perley L. Horne—President.
Uldrick Thompson—Vice-Prin. and Science.
David Kanuha—Tailoring.
Ira Eskew—Carpentry.
S. R. Parker—Agriculture.
C. G. Livingston—Mathematics, Music.
Jno. Floyd Hopwood—History, Civics, Economics.
Ross C. Ingram—Forging, Engineering.
Minnie Reed—Geography, Reading.
.....—Bookkeeping.
W. D. Barlow—Asst. in Agriculture.
Mrs. Alice M. Bradstreet—Matron.
Ethel M. Robinson—English.
.. S. Cookson—Machine Shop and Mechanical Drawing.
J. A. Quelle—Printing.
A. K. Hanchett—Military Instructor.
Mary C. Lyon—Supt. of Hospital.

Preparatory Department.

Alice E. Knaab.
Eugenia Thomas—Fifth and Sixth Grades.
Sarah A. Smith—First and Second Grades.
Maude Post—Third and Fourth Grades.
Ruth Huntington—Drawing, Manual Training.
M. Alice Rule—Matron.
Assistants—Dora Todd, Margaret Anahu, L. J. Nahora Hipa.
School for Girls.

Ida M. Pope.
Dora N. Albright, Mrs. J. A. Quelle—English.
Frances A. Lemmon—Geography, Arithmetic.
S. Lillian Livingston—Music.
Harriet F. McCracken—Matron.
L. E. McPherson—Nurse.
Nellie B. Baker—Drawing, Manual Training.
Mary S. Lawrence—Literature, History.
Carrie Church—Domestic Art.
Assistants—Helen K. Keoiki, Henrietta Scholtz, Margaret Williams, Kaipo Senna.

HONOLULU (STEAM) FIRE DEPARTMENT.

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid department.
Chief Engineer—Chas. Thurston.
Asst. Engineer—Augustus Deering.
Honolulu Engine No. 1—Location, Central Station, cor. Fort and Beretania streets.
Mechanic Engine No. 2—Location, Central Station, cor. Fort and Beretania streets.
Chemical Apparatus No. 3—Location, Central Station, cor. Fort and Beretania streets.
Protection Hook and Ladder Co. No. 1—Location, Central Station, cor. Fort and Beretania streets.
Engine Co. No. 4—Location, cor. Wilder avenue and Piikoi street.
Engine Co. No. 5—Location, King street, near Reform School.

FIRE ALARM SIGNALS.

12. Cor. King and Fort.
13. Queen and Fort.
14. Bethel and Merchant.
15. Nuuanu and Queen.
16. Nuuanu and King.
17. Nuuanu and Hotel.
21. Fort and Hotel.
23. Alakea and Hotel.
24. Alakea and Merchant.
25. Punchbowl and King.
26. Punchbowl and Queen.
27. South and Queen.
31. Fort and Allen.
32. Foot of Fort.
34. Foot of Alakea.
35. Alakea-Halekauwila.
36. Richards and Queen.
37. Punchbowl and Allen.
41. Alakea and Beretania.
42. Nuuanu and Beretania.
43. Smith and Pauahi.
45. Beretania and River.
46. Maunakea and King.
47. King and River.

51. Iwilei Road, opp. entrance to Stockade.
52. Iwilei Road, opp. Jail.
53. Beretania and King.
54. Liliha and King.
56. Insane Asylum Road and School St.
57. King Street, 200 feet Ewa of Pumping Station.
61. Vineyard and River.
62. Vineyard St. and Nuuanu Ave.
63. Vineyard and Fort.
64. Vineyard and Punchbowl.
65. Beretania and Punchbowl.
67. Alapai and Beretania.
71. Liliha and School.
72. Liliha and Judd.
73. Pauoa and Nuuanu Avenue.
74. Nuuanu and School.
75. Fort and School.
76. Emma and School.
81. Alapai and King.
82. Victoria and King.
83. Kapiolani and Beretania.
84. Kapiolani and Green.
85. Pensacola and Lunalilo.
86. Pensacola and Beretania.
87. Piikoi and King.
- Thurston Ave. opp. Magazine.
92. Pensacola and Wilder Ave.
93. Lunalilo, opp. Kewalo.
94. Keeaumoku St. and Wilder Ave.
95. Kewalo and Heulu.
96. Makiki and Dominis.
97. College and Dominis.
123. Makiki and Lunalilo.
124. Keeaumoku and Kinau.
125. Keeaumoku and King.
126. Punahou, opp. Bingham.
127. Punahou and King.
128. Sunny South.
132. Waikiki Road and Kalia Road.
134. Kalia Road opp. W. R. Castle Place.
135. Waikiki Road, opp. Moan Hotel.
136. Waikiki Road, opp. Race Track.
137. Railroad Wharf.

PRINCIPAL PUBLICATIONS.

- The Hawaiian Gazette, issued semi-weekly by the Hawaiian Gazette Co., Ltd., on Tuesdays and Fridays. Walter G. Smith, Editor.
- Sunday Advertiser, issued every Sunday morning by the Hawaiian Gazette Co., Ltd. Walter G. Smith, Editor.
- The Daily Pacific Commercial Advertiser, issued by the Hawaiian Gazette Co. every morning (except Sunday). Walter G. Smith, Editor.
- Official and Commercial Record, issued semi-weekly by the Hawaiian Gazette Co., Ltd.
- The Daily Bulletin, issued every evening (except Sundays), by the Bulletin Pub. Co. W. R. Farrington, Editor. Weekly editions issued on Tuesdays.
- The Hawaiian Star, issued every evening (except Sundays), by the Hawaiian Star Newspaper Association. Frank L. Hoogs, Manager. Semi-Weekly issued on Mondays and Thursdays.
- The Guide, issued every Tuesday and Friday mornings by the Guide Pub. Co.

- The Friend, Organ of the Hawaiian Board, issued on the first of each month. Rev. Doremus Scudder, Editor.
- The Anglican Church Chronicle, issued on the first Saturday of every month. Rev. A. Mackintosh, Editor.
- The Paradise of the Pacific, issued monthly. W. M. Langdon, Editor and Publisher.
- The Planters' Monthly, issued on the 15th of each month. R. D. Meade, Editor.
- The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. L. G. Blackman, Editor.
- The Honolulu Times, issued monthly. Miss A. M. Prescott, Editor and Publisher.
- The Kuokoa (native) weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. D. L. A-i, Editor.
- O. Luso (Portuguese), issued weekly on Saturdays. J. S. Ramos, Editor.
- A Liberdade, Portuguese weekly, published on Thursdays. J. F. Durno, Editor.
- The Hawaiian-Chinese News, issued semi-weekly.
- Chinese Chronicle, weekly, issued every Wednesday.
- Sun Ching Bok Wo, tri-weekly, Chinese.
- Aloha Aina (native), issued daily except Sundays. Weekly issued every Saturday. Ed. Like, Editor and Manager.
- The Yamato Shimbun, Japanese daily.
- Hawaiian Shinto, issued daily in Japanese.
- Honolulu News, Japanese daily.
- Hilo Tribune, issued weekly, on Saturdays by the Tribune Pub. Co., Hilo. A. M. Burns, Editor.
- The Hawaii Herald, issued weekly at Hilo on Thursdays by the Herald Pub. Co. Geo. F. Henshall, Editor.
- The Maui News, issued weekly at Wailuku, Maui. H. M. Coke, Editor.
- THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

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- Oceanic Lodge No. 371, F. & A. M.; meets on the last Monday in each month in Masonic Hall.
- Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.
- Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.
- Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.
- Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.
- Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.
- Nuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.
- Alexander Liholiho Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.

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- Lei Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple.
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- Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.
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- Mystic Lodge, No. 2, K. of P.; meets every Wednesday evening at Harmony Hall.
- Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Harmony Hall.
- Honolulu Temple, No. 1, Rathbone Sisters; meets in Harmony Hall fourth Monday evening of each month.
- Wm. McKinley Lodge, No. 6, K. of P.; meets every Saturday evening at Harmony Hall.
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- Oceanic Council, No. 777, American Legion of Honor; meets on the first and third Tuesdays of each month.
- Hawaiian Tribe, No. 1, Improved Order of Red Men; meets on second and fourth Fridays of each month at San Antonio Hall.
- Court Lunalilo, No. 6600, A. O. of Foresters; meets at San Antonio Hall on first and third Fridays of each month.
- Court Camoes, No. 8110, A. O. F.; meets second and fourth Tuesday evenings of month in San Antonio Hall.
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- Court Hawaii, No. 3769, I. O. F.; meets third Monday of each month at Harmony Hall, King street.
- Damen Council, Young Men's Institute; meets second and fourth Wednesdays of each month at San Antonio Hall.
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- Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets first and third Wednesdays each month at Harmony Hall, King street.
- American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first and third Sundays of each month at 7 p. m. in Harmony Hall.
- Marine Engineers' Beneficial Association, No. 100; meets every Monday night at Elks' Lodge.

PLACES OF WORSHIP.

- Central Union Church, Congregational (Independent), corner Beretania and Richards streets; Rev. J. Walter Sylvester, D. D., pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.
- Palama Chapel, J. A. Rath, Superintendent. Sunday school at 9:30 a. m. Gospel services at 7:30 p. m.
- Methodist Episcopal Church, corner Beretania and Miller streets. Rev. J. W. Wadman, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.
- The Christian Church, G. D. Edwards, pastor. Sunday services at 11 a. m. and 7:30 p. m. at their house of worship, Alakea street, near King. Sunday school meets at 9:45 a. m.
- Salvation Army, services held nightly at hall cor. Nuuanu and King streets, with Sunday services at the usual hours.
- Roman Catholic Church, Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.
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Kawaiahao Church (Congregational), corner of King and Punchbowl streets; Rev. H. H. Parker, pastor. Services in Hawaiian every Sunday at 11 a. m. and 7:30 p. m. Sunday school at 10 a. m. Prayer meeting Wednesday at 7:30 p. m. Rev. W. D. Westervelt in charge of English work among Hawaiians.

Kaumakapili Chapel (Congregational), King street, near Kaiulani School; Rev. W. N. Lono, pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school at 10 a. m.

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ABOUT
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1908



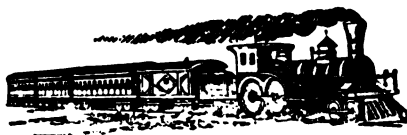
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HAWAIIAN Almanac and Annual

FOR

1908



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RELATING TO THE TERRITORY OF HAWAII, OF VALUE TO
MERCHANTS, TOURISTS AND OTHERS



THOS. G. THRUM,
Compiler and Publisher.



Thirty-Fourth Year of Publication



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HONOLULU:
1907

1908

Counting House Calendar

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
JAN.	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25
FEB.	2 9 16 23	3 10 17 24	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22
MAR.	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28
APR.	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22	2 9 16 23	3 10 17 24	4 11 18 25
MAY	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	8 15 22 29	9 16 23 30
JUNE	7 14 21 28	8 15 22 29	9 16 23 30	1 8 15 22	2 9 16 23	3 10 17 24	4 11 18 25
JULY	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25
AUG.	2 9 16 23 30	3 10 17 24	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22
SEPT.	6 13 20 27	7 14 21 28	8 15 22 29	9 16 23 30	1 8 15 22	2 9 16 23	3 10 17 24
OCT.	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	8 15 22 29	9 16 23 30	1 8 15 22
NOV.	1 8 15 22 29	2 9 16 23	3 10 17 24	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28
DEC.	6 13 20 27	7 14 21 28	8 15 22 29	9 16 23 30	1 8 15 22	2 9 16 23	3 10 17 24

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PUBLISHER

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HAWAIIAN ANNUAL CALENDAR FOR 1908.

Second half of the tenth year and first half of the eleventh year since annexation of Hawaii with the United States.

Fifteenth year since the downfall of the Monarchy.

The 130th year since the discovery of the Hawaiian Islands by Captain Cook.

Holidays Observed at the Hawaiian Islands.

*New Year	Jan. 1	*Labor Day (First Monday)	Sept. 7
Chinese New Year	Feb. 1	*Regatta Day (Third Saturday)	Sept. 19
*Washington's Birthday	Feb. 22	Recognition of Hawaiian Independence	Nov. 28
Good Friday	April 17	Thanksgiving Day	Nov. 26
*Decoration Day	May 30	*Christmas	Dec. 25
*Kamehameha Day	June 11		
*Birth Day Haw. Republic ..	July 4		
*American Anniversary	July 4		

Those distinguished by an Asterisk have been established by law.

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Church Days.

Epiphany	Jan. 6	Trinity Sunday	June 14
Ash Wednesday	March 4	Corpus Christi	June 18
First Sunday in Lent	March 8	Feast of St. Peter and Paul ..	June 29
Good Friday	April 17	Assumption Virgin Mary ..	Aug. 15
Easter Sunday	April 19	All Saints' Day	Nov. 1
Ascension Day	May 28	Advent Sunday	Nov. 29
Whit Sunday	June 7	Christmas	Dec. 25

Eclipses in 1908.

CALCULATED FOR HONOLULU BY DR. W. D. ALEXANDER.

In the year 1908 there will be three Eclipses of the Sun and a Lunar Appulse.

I. A Total Eclipse of the Sun, January 3d, 1908, visible in Honolulu as a partial eclipse. It will be visible throughout the Central Pacific, and total at a few islands of the Marshall, Gilbert and Phoenix groups.

At Honolulu the eclipse will begin at 9 h. 46.6 m., and end at 11 h. 17 m., local mean time. Nearest approach of the centres of the Sun and Moon at 10 h. 27 m., Honolulu mean time. Overlap of their disks about $\frac{3}{10}$ of the Sun's radius.

II. An Annular Eclipse of the Sun, June 28th, 1908, not visible in Honolulu. It will be visible in southern Mexico, and at Tampa, Florida.

III. A Lunar Appulse, December 7th, 1908, not visible at Honolulu. Nearest approach of the Moon to the Earth's shadow about 12th.

IV. A Central Eclipse of the Sun, December 23rd, 1908, not visible at Honolulu.

It will be visible in the southern part of South America and in South Africa.

FIRST QUARTER, 1908.

JANUARY.				FEBRUARY				MARCH			
D.	H. M.			D.	H. M.			D.	H. M.		
3	New Moon...	11.13.4	a.m.	1	New Moon...	10.06.5	p.m.	2	New Moon...	8.26.9	a.m.
10	First Quar....	3.22.9	a.m.	8	First Quar....	5.57.5	p.m.	9	First Quar....	11.12.1	a.m.
18	Full Moon....	3.06.9	a.m.	16	Full Moon....	10.35.4	p.m.	17	Full Moon....	3.58.5	p.m.
26	Last Quar....	4.31.3	a.m.	24	Last Quar....	4.54.3	p.m.	25	Last Quar....	2.01.6	a.m.
								31	New Moon....	6.32.2	p.m.
Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets....	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets....	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets....
		H.M.	H.M.			H.M.	H.M.			H.M.	H.M.
1	Wed.	6 37 9 5	29 5	1	Sat.	6 37 7 5	50 0	1	SUN.	6 21 1 6	4 2
2	Thurs.	6 38 2 5	30 1	2	SUN.	6 37 4 5	50 6	2	Mon.	6 20 3 6	4 7
3	Fri.	6 38 5 5	30 8	3	Mon.	6 37 0 5	51 3	3	Tues.	6 19 5 6	5 0
4	Sat.	6 38 7 5	31 4	4	Tues.	6 36 6 5	51 9	4	Wed.	6 18 7 6	5 4
5	SUN.	6 38 9 5	32 1	5	Wed.	6 36 2 5	52 5	5	Thurs.	6 17 9 6	5 8
6	Mon.	6 39 1 5	32 8	6	Thurs.	6 35 7 5	53 1	6	Fri.	6 17 0 6	6 2
7	Tues.	6 39 3 5	33 4	7	Fri.	6 35 3 5	53 7	7	Sat.	6 16 2 6	6 6
8	Wed.	6 39 5 5	34 1	8	Sat.	6 34 8 5	54 2	8	SUN.	6 15 4 6	6 9
9	Thurs.	6 39 7 5	34 8	9	SUN.	6 34 3 5	54 8	9	Mon.	6 14 5 6	7 3
10	Fri.	6 39 9 5	35 5	10	Mon.	6 33 8 5	55 3	10	Tues.	6 13 7 6	7 7
11	Sat.	6 40 1 5	36 2	11	Tues.	6 33 3 5	55 8	11	Wed.	6 12 8 6	8 0
12	SUN.	6 40 2 5	36 9	12	Wed.	6 32 8 5	56 3	12	Thurs.	6 11 9 6	8 4
13	Mon.	6 40 3 5	37 5	13	Thurs.	6 32 2 5	56 8	13	Fri.	6 11 0 6	8 7
14	Tues.	6 40 4 5	38 2	14	Fri.	6 31 6 5	57 3	14	Sat.	6 10 1 6	9 0
15	Wed.	6 40 4 5	38 9	15	Sat.	6 31 0 5	57 9	15	SUN.	6 9 2 6	9 3
16	Thurs.	6 40 4 5	39 6	16	SUN.	6 30 4 5	58 4	16	Mon.	6 8 3 6	9 7
17	Fri.	6 40 4 5	40 3	17	Mon.	6 29 8 5	58 9	17	Tues.	6 7 4 6	10 0
18	Sat.	6 40 4 5	40 9	18	Tues.	6 29 1 5	59 4	18	Wed.	6 6 5 6	10 3
19	SUN.	6 40 3 5	41 6	19	Wed.	6 28 5 5	59 9	19	Thurs.	6 5 6 6	10 6
20	Mon.	6 40 3 5	42 3	20	Thurs.	6 27 8 6	0 4	20	Fri.	6 4 7 6	10 9
21	Tues.	6 40 2 5	43 0	21	Fri.	6 27 1 6	0 9	21	Sat.	6 3 8 6	11 2
22	Wed.	6 40 1 5	43 6	22	Sat.	6 26 5 6	1 3	22	SUN.	6 2 9 6	11 6
23	Thurs.	6 39 9 5	44 3	23	SUN.	6 25 8 6	1 7	23	Mon.	6 2 0 6	11 9
24	Fri.	6 39 8 5	45 0	24	Mon.	6 25 1 6	2 1	24	Tues.	6 1 1 6	12 2
25	Sat.	6 39 6 5	45 6	25	Tues.	6 24 4 6	2 5	25	Wed.	6 0 1 6	12 5
26	SUN.	6 39 4 5	46 3	26	Wed.	6 23 7 6	2 9	26	Thurs.	5 59 2 6	12 8
27	Mon.	6 39 2 5	46 9	27	Thurs.	6 23 0 6	3 2	27	Fri.	5 58 3 6	13 1
28	Tues.	6 39 0 5	47 5	28	Fri.	6 22 3 6	3 5	28	Sat.	5 57 3 6	13 4
29	Wed.	6 38 7 5	48 1	29	Sat.	6 21 6 6	3 8	29	SUN.	5 56 4 6	13 7
30	Thurs.	6 38 4 5	48 8					30	Mon.	5 55 5 6	14 0
31	Fri.	6 38 0 5	49 4					31	Tues.	5 54 6 6	14 4

WITH regard to the contemplated discontinuance of the almanac feature of the ANNUAL, as mentioned in last issue, it has been decided to make no change for the present, in deference to the wishes of a number of patrons upon the other islands for its continuance, who maintain that it is an essential convenience if not necessity in the rural district households, one stating that "they need it for the sun to get up by."

SECOND QUARTER, 1908.

APRIL				MAY				JUNE			
D.	H.	M.		D.	H.	M.		D.	H.	M.	
8	First Quar...	6.01.5	a.m.	8	First Quar...	0.53.3	a.m.	6	First Quar...	6.26.1	p.m.
16	Full Moon...	6.25.3	a.m.	15	Full Moon...	6.02.4	p.m.	14	Full Moon...	3.25.2	a.m.
23	Last Quar...	8.36.7	a.m.	22	Last Quar...	1.47.2	p.m.	20	Last Quar...	6.56.1	p.m.
30	New Moon...	5.03.1	a.m.	29	New Moon...	4.44.5	p.m.	28	New Moon...	6.01.5	a.m.

Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...
		H.M.	H.M.			H.M.	H.M.			H.M.	H.M.
1	Wed.	5 53 7	6 14 7	1	Fri.	5 29 5	6 24 9	1	Mon.	5 17 3	6 37 8
2	Thurs.	5 52 8	6 15 0	2	Sat.	5 28 8	6 25 2	2	Tues.	5 17 2	6 38 2
3	Fri.	5 51 9	6 15 3	3	SUN.	5 28 2	6 25 6	3	Wed.	5 17 1	6 38 6
4	Sat.	5 51 0	6 15 6	4	Mon.	5 27 6	6 26 0	4	Thurs.	5 17 1	6 39 0
5	SUN.	5 50 1	6 16 0	5	Tues.	5 27 0	6 26 4	5	Fri.	5 17 0	6 39 4
6	Mon.	5 49 2	6 16 3	6	Wed.	5 26 4	6 26 8	6	Sat.	5 17 0	6 39 8
7	Tues.	5 48 3	6 16 6	7	Thurs.	5 25 8	6 27 2	7	SUN.	5 17 0	6 40 1
8	Wed.	5 47 4	6 16 9	8	Fri.	5 25 3	6 27 6	8	Mon.	5 17 0	6 40 5
9	Thurs.	5 46 5	6 17 2	9	Sat.	5 24 7	6 28 0	9	Tues.	5 16 9	6 40 9
10	Fri.	5 45 6	6 17 5	10	SUN.	5 24 3	6 28 5	10	Wed.	5 16 9	6 41 2
11	Sat.	5 44 8	6 17 8	11	Mon.	5 23 8	6 28 9	11	Thurs.	5 17 0	6 41 5
12	SUN.	5 44 0	6 18 1	12	Tues.	5 23 4	6 29 3	12	Fri.	5 17 1	6 41 9
13	Mon.	5 43 2	6 18 4	13	Wed.	5 22 9	6 29 8	13	Sat.	5 17 2	6 42 2
14	Tues.	5 42 3	6 18 8	14	Thurs.	5 22 4	6 30 2	14	SUN.	5 17 3	6 42 5
15	Wed.	5 41 5	6 19 1	15	Fri.	5 22 0	6 30 6	15	Mon.	5 17 5	6 42 8
16	Thurs.	5 40 7	6 19 4	16	Sat.	5 21 6	6 31 0	16	Tues.	5 17 6	6 43 1
17	Fri.	5 39 9	6 19 8	17	SUN.	5 21 2	6 31 4	17	Wed.	5 17 7	6 43 4
18	Sat.	5 39 0	6 20 1	18	Mon.	5 20 8	6 31 9	18	Thurs.	5 17 9	6 43 6
19	SUN.	5 38 2	6 20 5	19	Tues.	5 20 5	6 32 3	19	Fri.	5 18 0	6 43 9
20	Mon.	5 37 4	6 20 8	20	Wed.	5 20 2	6 32 7	20	Sat.	5 18 2	6 44 1
21	Tues.	5 36 6	6 21 2	21	Thurs.	5 19 8	6 33 1	21	SUN.	5 18 4	6 44 4
22	Wed.	5 35 8	6 21 5	22	Fri.	5 19 5	6 33 6	22	Mon.	5 18 6	6 44 6
23	Thurs.	5 35 0	6 21 9	23	Sat.	5 19 2	6 34 0	23	Tues.	5 18 8	6 44 7
24	Fri.	5 34 3	6 22 3	24	SUN.	5 18 8	6 34 5	24	Wed.	5 19 1	6 44 9
25	Sat.	5 33 6	6 22 6	25	Mon.	5 18 5	6 34 9	25	Thurs.	5 19 4	6 45 1
26	SUN.	5 32 9	6 23 0	26	Tues.	5 18 3	6 35 4	26	Fri.	5 19 6	6 45 2
27	Mon.	5 32 2	6 23 3	27	Wed.	5 18 1	6 35 8	27	Sat.	5 19 9	6 45 4
28	Tues.	5 31 4	6 23 7	28	Thurs.	5 17 9	6 36 2	28	SUN.	5 20 2	6 45 5
29	Wed.	5 30 8	6 24 1	29	Fri.	5 17 7	6 36 6	29	Mon.	5 20 5	6 45 6
30	Thurs.	5 30 1	6 24 5	30	Sat.	5 17 5	6 37 0	30	Tues.	5 20 8	6 45 7
				31	SUN.	5 17 4	6 37 4				

HAWAIIAN tradition relates that Kualii Kunuiakea Kuikeilaikanaokalani, who ruled on Oahu in the sixteenth century was the promulgator of the Niaupio Kalowalo laws, whereby old men and women slept in safety on the highway; assistance inculcated to be rendered honest toilers; food shared with the hungry, and strangers entertained. This beneficent law has been commonly credited to Kamehameha. Kualii died in 1730, aged (it is alleged,) 175 years.

THIRD QUARTER, 1908.

JULY				AUGUST				SEPTEMBER			
D.		H. M.		D.		H. M.		D.		H. M.	
6	First Quar...	9 55.0	a.m.	4	First Quar...	11.10.4	p.m.	3	First Quar...	10.20.8	a.m.
13	Full Moon...	11.17.9	a.m.	11	Full Moon...	6.28.8	p.m.	10	Full Moon...	9.53.3	a.m.
20	Last Quar...	1.31.7	a.m.	18	Last Quar...	10.55.5	a.m.	17	Last Quar...	0.03.4	p.m.
27	New Moon...	8.46.8	p.m.	26	New Moon...	0.28.9	p.m.	25	New Moon...	4.29.4	a.m.
Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...
		H.M.	H.M.			H.M.	H.M.			H.M.	H.M.
1	Wed..	5 21 16	45 8	1	Sat...	5 32 9	6 39 0	1	Tues..	5 43 26	16 6
2	Thurs.	5 21 46	45 8	2	SUN..	5 33 0	6 38 5	2	Wed..	5 43 46	15 7
3	Fri...	5 21 76	45 9	3	Mon..	5 33 7	6 38 0	3	Thurs.	5 43 76	14 8
4	Sat...	5 22 16	45 8	4	Tues..	5 34 16	6 37 4	4	Fri...	5 43 96	13 9
5	SUN..	5 22 46	45 8	5	Wed..	5 34 46	6 36 9	5	Sat...	5 44 26	13 0
6	Mon..	5 22 86	45 8	6	Thurs.	5 34 86	6 36 3	6	SUN..	5 44 56	12 0
7	Tues..	5 23 16	45 8	7	Fri...	5 35 26	6 35 7	7	Mon..	5 44 76	11 1
8	Wed..	5 23 56	45 8	8	Sat...	5 35 66	6 35 1	8	Tues..	5 45 06	10 2
9	Thurs.	5 23 86	45 7	9	SUN..	5 35 96	6 34 5	9	Wed..	5 45 36	9 2
10	Fri...	5 24 26	45 6	10	Mon..	5 36 36	6 33 8	10	Thurs.	5 45 56	8 3
11	Sat...	5 24 56	45 5	11	Tues..	5 36 66	6 33 2	11	Fri...	5 45 86	7 3
12	SUN..	5 24 96	45 4	12	Wed..	5 37 06	6 32 5	12	Sat...	5 46 06	6 4
13	Mon..	5 25 46	45 3	13	Thurs.	5 37 36	6 31 8	13	SUN..	5 46 36	5 4
14	Tues..	5 25 86	45 1	14	Fri...	5 37 76	6 31 1	14	Mon..	5 46 56	4 4
15	Wed..	5 26 26	44 9	15	Sat...	5 38 06	6 30 4	15	Tues..	5 46 86	3 5
16	Thurs.	5 26 66	44 7	16	SUN..	5 38 36	6 29 7	16	Wed..	5 47 06	2 5
17	Fri...	5 27 06	44 5	17	Mon..	5 38 76	6 29 0	17	Thurs.	5 47 36	1 6
18	Sat...	5 27 46	44 3	18	Tues..	5 39 06	6 28 2	18	Fri...	5 47 56	0 6
19	SUN..	5 27 86	44 1	19	Wed..	5 39 36	6 27 5	19	Sat...	5 47 85	59 7
20	Mon..	5 28 26	43 8	20	Thurs.	5 39 66	6 26 7	20	SUN..	5 48 05	58 7
21	Tues..	5 28 66	43 5	21	Fri...	5 39 96	6 25 9	21	Mon..	5 48 35	57 8
22	Wed..	5 29 06	43 2	22	Sat...	5 40 36	6 25 1	22	Tues..	5 48 55	56 8
23	Thurs.	5 29 46	42 8	23	SUN..	5 40 66	6 24 3	23	Wed..	5 48 85	55 9
24	Fri...	5 29 86	42 5	24	Mon..	5 40 96	6 23 5	24	Thurs.	5 49 05	54 9
25	Sat...	5 30 26	42 1	25	Tues..	5 41 26	6 22 6	25	Fri...	5 49 35	53 9
26	SUN..	5 30 66	41 7	26	Wed..	5 41 46	6 21 8	26	Sat...	5 49 65	53 0
27	Mon..	5 31 06	41 3	27	Thurs.	5 41 76	6 20 9	27	SUN..	5 49 85	52 1
28	Tues..	5 31 46	40 9	28	Fri...	5 42 06	6 20 1	28	Mon..	5 50 15	51 1
29	Wed..	5 31 86	40 5	29	Sat...	5 42 36	6 19 2	29	Tues..	5 50 45	50 2
30	Thurs.	5 32 26	40 0	30	SUN..	5 42 66	6 18 3	30	Wed..	5 50 75	49 2
31	Fri...	5 32 56	39 5	31	Mon..	5 42 96	6 17 4				

THE introduction of deer into these islands appears to date back to 1856 by the receipt that year, by Capt. Jas. Makee, of a reindeer from the Ochotsk by the "Vernon." The following year a 200-pound buck was brought from Oregon by a Capt. Collins in the brig "Advance." In 1867 the Hawaiian Consul at Japan sent, as a present to the king, a flock of eight by the ship "Loch na Garr," which, after a short stay in Honolulu, were sent to Molokai.

FOURTH QUARTER, 1908.

OCTOBER				NOVEMBER				DECEMBER			
D.		H.M.		D.		H.M.		D.		H.M.	
2	First Quar...	7.43.7	p.m.	1	First Quar...	3.46.3	a.m.	7	Full Moon...	11.14.1	a.m.
9	Full Moon...	10.33.4	a.m.	7	Full Moon...	9.28.0	p.m.	15	Last Quar...	10.42.5	a.m.
16	Last Quar...	5.05.4	p.m.	15	Last Quar...	1.11.1	p.m.	23	New Moon...	1.19.7	a.m.
24	New Moon...	8.16.6	p.m.	23	New Moon...	11.23.1	a.m.	29	First Quar...	7.09.9	p.m.
				30	First Quar...	11.14.4	a.m.				
Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.	Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.	Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.
		H.M.	H.M.			H.M.	H.M.			H.M.	H.M.
1	Thurs.	5 51 0	5 48 3	1	SUN...	6 2 8	5 24 4	1	Tues.	6 20 9	5 17 2
2	Fri...	5 51 3	5 47 4	2	Mon...	6 3 3	5 23 9	2	Wed.	6 21 5	5 17 3
3	Sat...	5 51 6	5 46 5	3	Tues...	6 3 8	5 23 3	3	Thurs.	6 22 2	5 17 4
4	SUN...	5 51 8	5 45 6	4	Wed...	6 4 3	5 22 8	4	Fri...	6 22 8	5 17 5
5	Mon...	5 52 1	5 44 7	5	Thurs.	6 4 9	5 22 4	5	Sat...	6 23 5	5 17 7
6	Tues.	5 52 4	5 43 8	6	Fri...	6 5 4	5 21 9	6	SUN...	6 24 2	5 17 9
7	Wed.	5 52 7	5 42 9	7	Sat...	6 6 0	5 21 4	7	Mon...	6 24 8	5 18 1
8	Thurs.	5 53 1	5 42 0	8	SUN...	6 6 5	5 21 0	8	Tues...	6 25 4	5 18 4
9	Fri...	5 53 4	5 41 1	9	Mon...	6 7 1	5 20 7	9	Wed...	6 26 0	5 18 7
10	Sat...	5 53 8	5 40 2	10	Tues...	6 7 6	5 20 2	10	Thurs.	6 26 6	5 19 0
11	SUN...	5 54 1	5 39 4	11	Wed...	6 8 2	5 19 9	11	Fri...	6 27 3	5 19 3
12	Mon...	5 54 5	5 38 6	12	Thurs.	6 8 9	5 19 5	12	Sat...	6 27 9	5 19 6
13	Tues.	5 54 8	5 37 7	13	Fri...	6 9 5	5 19 2	13	SUN...	6 28 5	5 19 9
14	Wed.	5 55 1	5 36 9	14	Sat...	6 10 1	5 18 9	14	Mon...	6 29 1	5 20 3
15	Thurs.	5 55 5	5 36 1	15	SUN...	6 10 7	5 18 6	15	Tues...	6 29 7	5 20 6
16	Fri...	5 55 8	5 35 3	16	Mon...	6 11 3	5 18 3	16	Wed...	6 30 3	5 21 0
17	Sat...	5 56 2	5 34 5	17	Tues...	6 11 9	5 18 0	17	Thurs.	6 30 8	5 21 5
18	SUN...	5 56 6	5 33 7	18	Wed...	6 12 5	5 17 8	18	Fri...	6 31 4	5 21 9
19	Mon...	5 56 9	5 32 9	19	Thurs.	6 13 1	5 17 6	19	Sat...	6 31 9	5 22 3
20	Tues.	5 57 3	5 32 2	20	Fri...	6 13 7	5 17 4	20	SUN...	6 32 5	5 22 8
21	Wed.	5 57 7	5 31 4	21	Sat...	6 14 3	5 17 2	21	Mon...	6 33 0	5 23 3
22	Thurs.	5 58 2	5 30 7	22	SUN...	6 15 0	5 17 1	22	Tues...	6 33 5	5 23 8
23	Fri...	5 58 6	5 30 0	23	Mon...	6 15 7	5 17 1	23	Wed...	6 34 0	5 24 3
24	Sat...	5 59 1	5 29 3	24	Tues...	6 16 3	5 17 0	24	Thurs.	6 34 5	5 24 8
25	SUN...	5 59 5	5 28 7	25	Wed...	6 17 0	5 17 0	25	Fri...	6 35 0	5 25 3
26	Mon...	6 0 5	5 28 0	26	Thurs.	6 17 6	5 17 0	26	Sat...	6 35 5	5 25 9
27	Tues...	6 0 4	5 27 4	27	Fri...	6 18 2	5 17 0	27	SUN...	6 35 9	5 26 5
28	Wed.	6 0 9	5 26 7	28	Sat...	6 18 9	5 17 0	28	Mon...	6 36 3	5 27 0
29	Thurs.	6 1 4	5 26 1	29	SUN...	6 19 6	5 17 1	29	Tues...	6 36 8	5 27 6
30	Fri...	6 1 8	5 25 5	30	Mon...	6 20 2	5 17 1	30	Wed...	6 37 0	5 28 2
31	Sat...	6 2 3	5 24 9					31	Thurs.	6 37 3	5 28 8

PHEASANTS were first introduced here from China in 1865, which came to Captain Makee and were sent to his Ulupalakua Ranch, Maui; they consisted of one cock and three hens, and were forwarded by Dr. Wm. Hillebrand. In 1869 another assorted lot of eight were received, among which were some of the golden variety, and came from Japan all in fine order. Other birds sent hither in 1865 were: Java sparrows; finches or linnets; red-bills; bamboo fowls; ring-necked doves, and seven unknown of beautiful plumage.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1 $\frac{1}{4}$	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N. W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena. 58	

HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Kawaihae, Hawaii.....	144
Kalaupapa, Leper Settlement....	52	Kealakekua, " (direct).....	157
West Point of Lanai.....	50	" " (via Kawaihae).....	186
Lahaina, Maui.....	72	S. W. Pt. Hawaii " ".....	233
Kahului, "	90	Punaluu, "	250
Hana, "	123	Hilo, " (direct).....	192
Maalaea, "	86	" " (windward).....	206
Makena, "	96	" " (via Kawaihae).....	230
Mahukona, Hawaii	134		

HONOLULU TO

Nawiliwili, Kauai	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealakekua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaalualu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N. E. Cape.....	4890
Samoa	2290	Victoria, B. C.	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

Revised for the Annual in accordance with latest Government Survey measurements.
The outer column of figures indicates the distance between points

ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

Miles.		Miles. Inter.	
Bishop's corner (Waikiki).....	3.2	Kahana	26.4 4.5
Waikiki Villa	3.6	Punaluu	28.4 2.0
Race Course	4.5	Hauula	31.4 3.0
Diamond Head	5.9	Laie	34.4 3.0
Kaalawai	6.0	Kahuku Mill	37.2 2.8
Miles. Inter.		Miles. Inter.	
Thomas Square	1.0	Kahuku Ranch	40.0 2.8
Pawaa corners	2.0 1.0	Moanalua	3.4
Kamoliili	3.3 1.3	Kalauao	7.4 4.0
Telegraph Hill	5.0 1.7	Ewa Church	10.2 2.8
Waialae	6.2 1.2	Kipapa	13.6 3.4
Niu	8.8 2.6	Kaukonahua	20.0 6.4
Koko Head	11.8 3.0	Leilehua	20.0
Makapuu	14.8 3.0	Waialua	28.0 8.0
Waimanalo	20.8 6.0	Waimea	32.4 4.4
Waimanalo, via Pali.....	12.0	Kahuku Ranch	39.4 7.0
Nuuanu Bridge	1.1	Ewa Church	10.2
Mausoleum	1.5 0.4	Waipio (Brown's)	11.2 1.0
Electric Reservoir	2.7 1.2	Hoeae (Robinson's)	13.5 2.3
Luakaha	4.3 1.6	Barber's Point, L. H.	21.5 8.0
*Pali	6.2 1.9	Nanakuli	23.5 2.0
Kaneohe (new road).....	11.9 5.7	Waianae Plantation	29.9 6.4
Waiahole	18.9 7.0	Kahanahaiki	36.9 7.0
Kualoa	21.9 3.0	Kaena Point	42.0 5.1
		Waialua to Kaena Pt.	12.0

OAHU RAILWAY: DISTANCES FROM HONOLULU DEPOT TO

Miles.		Miles.	
Moanalua	2.76	Waipio	13.58
Punloa	6.23	Waikele	14.57
Halawa	8.14	Hoeae	15.23
Aiea	9.37	Ewa Plantation Mill	18.25
Kalauao	10.20	Waianae Station	33.30
Waiau	10.93	Kaena Point	44.50
Pearl City	11.76	Waialua Station	55.80
Waiawa	12.52	Kahuku Plantation	60.50
Wahiawa Station	25.20	Punaluu	80.50

ISLAND OF KAUAI.

NAWILIWILI TO

Miles. Inter.		Miles. Inter.	
Koloa	11.0	Wailua River	7.7 4.4
Lawai	13.8 2.8	Kealia	11.9 4.2
Hanapepe	20.0 6.2	Anahola	15.7 3.8
Waimea	27.1 7.1	Kilauea	23.6 7.9
Waiawa	31.5 4.4	Kalihiwai	26.6 3.0
Nuololo	44.8 13.3	Hanalei	31.8 5.2
Hanamaulu	3.3	Wainiha	34.8 3.0
		Nuololo (no road)	47.0 12.2

* Pali distance is by the old Road, new measurements are not of record.

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	3.5		Paia	5.5	
Paia	5.5	2.0	Makawao Court House.	10.5	5.0
Hamakuapoko Mill	8.6	3.1	Olinda	16.7	6.2
Haiku	10.2	1.6	Haleakala, edge Crater.	22.5	5.8
Halehaku	16.0	5.8	Haleakala Summit	24.7	2.2
Huelo	19.5	3.5			
Keanae	27.2	7.7	Maalaea	9.9	
Nahiku	32.7	5.5	End of Mountain Road.	15.4	5.5
Ulaino	36.3	3.6	Olowalu	19.6	4.2
Hana	42.3	6.0	Lahaina Court House.	25.5	5.9
Hamoā	45.3	3.0			
Wailua	48.9	3.6	Waiehu	3.3	
Kipahulu Mill	52.2	3.3	Waihee	4.8	1.5
Mokulau	56.6	4.4	Kahakuloa	10.1	5.3
Nuu	62.1	5.5	Honokohau	14.5	4.4
			Honolua	17.4	2.9
Wailuku	3.1		Napili	20.0	2.6
Waikapu	5.5	2.4	Honokawai	23.8	3.8
Maalaea	9.9	4.4	Lahaina Court House.	29.3	5.5
Kalepolepo	14.6	4.7			
Mana	22.3	7.7	MAKENA TO		
Ulupalakua	25.6	3.3	Ulupalakua	3.3	
Kanaio	28.9	3.3	Kamaole	7.1	3.8
Pico's	35.5	6.6	Waiakoa	12.1	5.0
Nuu	41.0	5.5	Foot of Puu Pane.	15.8	3.7
			Makawao Court House.	21.8	6.0

ISLAND OF HAWAII.

WAIMEA COURT HOUSE TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary	4.5		Hilo, via Humuula St'n.	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep St'n.	14.0	
Mana	7.7		Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Auwaiakewa	12.5		Kohala Court House	22.0	5.0
Humuulu Sheep Station.	29.0	16.5	Mahukona	22.0	
Via Laumaia	47.5		Puako	12.0	

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.	4.00	Union Mill	2.25
Niulii Mill	2.80	Union Mill R. R. Station.	3.25
Halawa Mill	1.65	Honomakau	2.55
Hapuu Landing	2.15	Hind's Hawaii	3.25
Kohala Mill	.50	Hawi R. R. Station.	4.25
Kohala Mill Landing.	1.50	Honoipu	7.25
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0		Wight's Corner	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niulii Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch....	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	
Kohala Mill Corner.....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4		Mana, Parker's	19.5
Puuiiki, Spencer's	7.7	3.3	Keawewai	6.0
Waiaka, Catholic Church. 9.5	1.8		Puuhue Ranch	10.0
Puuopelu, Parker's	10.8	1.3	Kohala Court House.....	15.0
Waimea Court House.....	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA. KEALAKEKUA TO

Keauhou	6.0		Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopuloa	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry. 31.6	4.0		Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0		Honuapo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO
(By new road.)

	Miles.		Miles.
Keaau, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiiki (Rycroft's)	28.0	Keauhou	50.9
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau....	56.9
Kamaili	26.0	Sand Hills, Naawale, old road..	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.3
Edge of Woods	4.1	Mason's	17.5
Cocconut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolii Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road.....	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Hakulau, east edge gulch.....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kukaiau Gulch	8.0	Stream at Kukuihaele.....	26.0
Horner's	8.5	Edge Waipio	26.5
Catholic Church, Kainehe.....	9.0	Bottom Waipio	27.0
Notley's, Paauiilo	10.5	Waimanu (approximate)	32.5
Kaumoalii Bridge	12.5	Kukuihaele to Waimea (approximate)	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill....	1.5
Wm. Horner's, Paauihau.....	15.2	Gov't. Road to Paauihau Mill....	1.0
Paauihau Church	16.3	Gov't. Road to Pacific Sugar Mill,	
Holmes' Store, Honokaa.....	18.0	Kukuihaele	0.7
Honokaia Church	20.5		

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluaaha	13.5		

TABLE OF ELEVATIONS OF PRINCIPAL LOCALITIES THROUGHOUT THE ISLANDS.

(From Government Survey Records; Measurements from mean Sea Level.)

OAHU PEAKS.

	Feet.		Feet.
Kaala, Waianae Range.....	4030	Telegraph Hill or Kaimuki.....	291
Palikea, Waianae Range.....	3111	Koko Head, higher crater.....	1203
Konahuanui Peak, S. of Pali....	3105	Koko Head, lower crater.....	644
Lanihuli Peak, N. of Pali.....	2781	Makapu, east point of island....	665
Tantalus or Puu Ohia.....	2013	Mokapu, crater off Kaneohe....	681
Awawaloa (Olympus), Manoa....	2447	Olomana, sharp peak, Kailua....	1645
Round Top or Ualakaa.....	1049	Maelieli, sharp peak, Heeia....	715
Punchbowl Hill or Puowaina....	498	Ohulehule, sharp peak, Hakipuu.	2263
Diamond Head or Leahi.....	761	Koolau Range, above Wahiawa.	2381

LOCALITIES NEAR HONOLULU.

Nuuanu Road, cor. School St....	40	Nuuanu Road, Queen Emma's..	358
" " second bridge....	77	" " cor. above Elec-	
" " cor. Judd St....	137	tric Light Works.....	429
" " Cemetery gate....	162	Nuuanu Road, large bridge....	735
" " Mau's'l'm gate....	206	" " Luakaha gate....	848
" " Schaefer's gate....	238	" " Pali, old station.	1214

MOLOKAI ETC.

Kamakou Peak	4958	Kaolewa Pali, o'v'lng. Settlmnt.	2100
Oloku Peak	4600	Meyer's, Kalae	1485
Kaunuohua	4535	Mauna Loa, near Kaunakakai....	1382
Kalapamoa	4004	Kualapuu Hill	1018
Puu Kolekole	3951	Kahoolawe (Moaula Hill).....	1472
Kaulahuki	3740	Molokini	160
Kaapahu Station	3563	Lanai	3400

HAWAII.

	Feet.		Feet.
Mauna Kea	13,825	Hiilawe Falls	1700
Mauna Loa	13,675	Parker's, Mana	3505
Hualalai	8275	Honokaa Store	1100
Kohala Mountains	5489	Kaluamakani, Hamakua	7584
Kilauea Vol. House, by leveling	3971	Lower edge forest, Hamakua ..	1700
Kulani, near Kilauea	5574	Lower edge forest, Hilo	1200
Kalaihea	6660	Laupahoehoe Pali	385
Aahuwela, near Laumaia	7747	Kauku Hill	1964
Hitchcock's, Puakala	6325	Puu Alala	762
Ahumo'a	7034	Halai Hill	347
Waimea Court House	2669	Puu o Nale, Kohala	1797
Waipio Pali, in Mountain	3000	B. D. Bond's, Kohala	521
Waipio Pali, on S (Road)	900	Episcopal Church, Kainaliu ..	1578
Waipio Pali, on N. side	1394	Puu Enuhe, Kau	2327
Waimanu, at sea	1600	Puu Hoomaha, Kau	6636
Waimanu, in mountain	4000	Puu ka Pele, Kau	5768
Waiau Lake, Mauna Kea	13,041	Pohaku Hanalei, Kau	12,310
Poliahu, Mauna Kea	13,646	Kapoho Hill, Puna	432
Kalaieha, N. Hilo	6738	Kaliu Hill, Puna	1065
Pohaku, Hanalei, Humuula	7343	Olaa Trig. Station	622

MAUI.

Haleakala (Red Hill)	10,032	Puu Kapuai, Hamakua	1150
Mt. Kukui, West Maui	5790	Puu o Umi, Haiku	620
Piihola, Makawao	2256	Puu Pane, Kula	2568
Puu Olai (Miller's Hill)	355	Lahainaluna Seminary	600
Puu Io, near Ulupalakua	2841	Kauiki, Hana	392
Ulupalakua, about	1800	"Sunnyside" Makawao	930
Olinda, Makawao	4043	Paia Foreign Church, about ..	850
Puu Pane, Kahikinui	3988	Eka, crater in Waihee	4500
Puu Niania, Makawao	6850	Keakaamanu, Hana	1250

KAUAI

Haupu	2030	Mt. Waialeale, central peak ..	5250
Kilohana, about	1100	Namolokama	4200

NOTE—A large number of approximate elevations of stations where rain records are kept may be found in the Rain Tables in this Annual.

Area, Elevation and Population of the Hawaiian Islands.

(As revised by latest Government Survey Records.)

Islands.	Area in Statute Square Miles.	Acres.	Height in Feet.	Population in 1900.
Hawaii	4,015	2,570,000	13,825	46,843
Maui	728	466,000	10,032	24,797
Oahu	598	384,000	4,030	58,504
Kauai	547	348,000	5,250	20,562
Molokai	261	167,000	4,958	2,504
Lanai	139	86,000	3,400	619
Niihau	97	62,000	1,300	172
Kahoolawe	69	44,000	1,472	.....

Total area of Hawaiian Islands, 6,449 miles.

The outlying islets on the N. W. may amount to 6 square miles.

KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.
 Circumference, 41,500 feet, or 7.85 miles.
 Extreme width, 10,300 feet, or 1.95 miles.
 Extreme Length, 15,500 feet, or 2.93 miles.
 Elevation, Volcano House, 4,000 feet.

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.
 Circumference, 50,000 feet, or 9.47 miles.
 Length, 19,500 feet, or 3.7 miles.
 Width, 9,200 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

HALEAKALA, MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.
 Circumference, 105,600 feet, or 20 miles.
 Extreme Length, 39,500 feet, or 7.48 miles.
 Extreme width, 12,500 feet, or 2.37 miles.
 Elevation to summit, 10,032 feet.
 Elevation of principal cones in crater, 8,032 and 1,572 feet.
 Elevation of cave in floor of crater, 7,380 feet.

IAO VALLEY, MAUI.

Length (from Wailuku), about 5 miles.
 Width of Valley, 2 miles.
 Depth, near head, 4,000 feet.
 Elevation of Puu Kukui, above head of Valley, 5,700 feet.
 Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

Standard and Local Time.

The Standard Time of the Hawaiian Islands is that of Longitude $157^{\circ} 30' W.$, 10 h. 30 m. slower than Greenwich Time. The time of sunrise and sunset given in the tables is of course local time; to correct this to standard time, add or subtract a correction corresponding with the differences between $157^{\circ} 30'$ and the longitude of the station.

The corrections would be for the following stations:

Niihau	+10:8 m	Wailuku, Maui	— 4:0 m
Mana, Kauai	+ 9:0 m	Haiku, Maui	— 4:8 m
Koloa, Kauai	+ 7:9 m	Hana, Maui	— 6:0 m
Kilauea, Kauai	+ 7:3 m	Kailua, Hawaii	— 6:2 m
Waialua, Oahu	+ 2:5 m	Kohala, Hawaii	— 7:0 m
Kahuku, Oahu	+ 2:0 m	Kukuihaele, Hawaii	— 8:0 m
Honolulu, Oahu	+ 1:5 m	Punaluu, Hawaii	— 8:0 m
Kalae, Molokai	— 2:0 m	Ookala, Hawaii	— 9:0 m
Lanai	— 2:5 m	Hilo, Hawaii	— 9:8 m
Lahaina, Maui	— 3:0 m		

LATEST CENSUS—HAWAIIAN ISLANDS.

From Census Bulletin, Washington, D. C., 1900.

Total Population by Districts and Islands—Comparative 1900 and 1896.

HAWAII.	1900	1896	OAHU.	1900	1896
Hilo	19,785	12,878	Honolulu	39,306	29,920
Puna	5,128	1,748	Ewa	9,689	3,067
Kau	3,854	2,908	Waianae	1,008	1,281
North Kona	3,819	3,061	Waialua	3,285	1,349
South Kona	2,372	2,327	Koolauloa	2,372	1,835
North Kohala	4,366	4,125	Koolaupoko	2,844	2,753
South Kohala	600	558			
Hamakua	6,919	5,680	KAUAI.	58,504	40,205
MAUI.	46,843	33,285	Waimea	5,714	4,431
Lahaina	4,352	2,398	Niihau	172	164
Wailuku	7,953	6,072	Koloa	4,564	1,835
Hana	5,276	3,792	Kawaihau	3,220	2,762
Makawao	7,236	5,464	Hanalei	2,630	2,775
			Lihue	4,434	3,425
	24,797	17,726		20,734	15,392
Molokai and Lanai	3,123	2,417	Total whole group	154,001	109,020

Comparative Table of Nationality of Population of Hawaiian Islands at various census periods since 1872.

Nationality	1872	1878	1884	1890	1896	1900
Natives	49,944	44,088	40,015	34,436	31,019	29,787
Part Hawaiians	1,487	3,420	4,218	6,186	8,485	7,848
Chinese	1,938	5,916	17,937	15,301	19,382	25,762
Americans	889	1,276	2,066	1,928	2,266	7,283
Hawaiian-born foreigners	849	947	2,040	7,495	13,733	
British	618	883	1,281	1,344	1,538	1,730
Portuguese	395	436	9,377	8,602	8,232	15,675
German	224	272	1,600	1,434	912	1,154
French	88	81	192	70	75	.....
Japanese .....	.....	.....	116	12,360	22,329	61,115
Norwegian .....	.....	.....	362	227	216	410
Other foreigners	364	666	416	419	424	2,584
Polynesian .....	.....	.....	965	588	409	653
Total	56,897	57,985	80,578	89,990	109,020	154,001

Population of Honolulu at various census periods.

1884	20,487	1096	29,926
1890	22,907	1900	39,300

Foreign Born Population of Hawaii, 1900, distributed according to country of births:

As reported for the Annual by the Census Bureau, Washington, D. C.

Country	Hawaii	Kauai and Niihau*	Lanai and Maui	Molokai	Oahu	Total
Atlantic Islands	522	76	154	12	392	1,156
Austria.....	99	26	64	....	36	225
Canada (Engl.)	79	11	9	2	238	339
China.....	4,202	3,265	2,988	77	11,209	21,741
England.....	142	35	49	6	507	739
Germany*.....	135	334	71	11	603	1,154
Ireland.....	25	9	15	4	172	225
Japan.....	21,314	9,736	10,465	382	14,337	56,234
Norway and Demark.....	31	50	44	6	139	270
Pacific Islands..	49	63	161	11	308	593
Portugal.....	2,217	727	1,032	6	2,530	6,512
Scotland.....	163	39	39	1	185	427
Spain.....	54	12	27	....	109	202
Sweden.....	40	4	9	2	85	140
Other Countries	162	85	64	9	503	823
Total.....	29,234	14,472	15,191	529	31,354	0,780

*Niihau's share of Foreign born is 3; one each Scotch, Japanese and one other.

Native Born Population of Hawaii, 1900.

The total native born Population of Hawaii is 63,221, which is made up as follows:

Hawaiian.....	29,787	Negroes.....	178
Part Hawaiian.....	7,844	South Sea Islanders.....	60
Caucasians.....	7,283	Japanese.....	4,881
Portuguese.....	9,263	Chinese.....	4,021

Comparative Table, of Population, Hawaiian Islands—Census Periods 1853-1900.

Islands	1853	1860	1866	1872	1878	1884	1890	1896	1900
Hawaii....	24,450	21,481	19,808	16,001	17,034	24,991	26,754	33,285	46,843
Maui.....	17,574	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797
Oahu.....	19,126	21,275	19,799	20,671	20,236	28,068	31,194	40,205	58,504
Kauai.....	6,991	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562
Molokai...	3,607	2,864	2,299	2,349	2,581	....	2,652	2,307	2,504
Lanai.....	600	646	394	348	214	2,614	174	105	619
Niihau....	790	647	325	233	177	....	216	164	172
Kahoolawe	....	....	....	....	....	....	....	....	....
Total....	73,138	69,800	62,959	56,897	57,985	80,578	89,900	109,020	154,001
All For'g'rs	2,119	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366
Hawaiians	71,019	67,084	58,765	51,531	47,508	44,228	40,622	39,504	37,635

*Including Niihau.

School Statistics, Territory of Hawaii.

From Report of the Superintendent of Public Instruction.

NUMBER OF SCHOOLS, CLASS, ETC., DEC. 1906.

ISLANDS	PUBLIC SCHOOL					PRIVATE SCHOOLS		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii	59	140	2,919	2,341	5,260	10	31	714
Oahu	34	158	3,350	2,955	6,305	33	185	3,254
Maui, Molokai and Lanai	41	81	1,594	1,268	2,862	16	39	1,144
Kauai and Niihau	17	52	1,212	1,012	2,224	3	6	127
Totals	151	431	9,075	7,576	16,651	62	261	5,239

NUMBER OF SCHOOLS, TEACHERS AND PUPILS, 1906.

CLASS	Schools	TEACHERS			PUPILS		
		M.	F.	Total	M.	F.	Total
Public Schools	151	105	328	431	9,075	7,576	16,651
Private "	62	81	180	261	2,872	2,427	5,239
Totals	213	184	508	692	11,887	10,003	21,890

AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS, JUNE, 1906

SEX	Under 6	6-15	Over 15	Total
Boys	648	10,309	930	11,887
Girls	614	8,778	611	10,003
Total	1,262	19,087	1,541	21,890

NATIONALITY OF PUPILS, 1906.

	Public	Private		Public	Private
Hawaiians	4,106	800	Chinese	1,594	603
Part Hawaiians	2,460	1,040	Japanese	3,828	719
Americans	507	502	Porto Ricans	392	.....
English	106	81	Korean	161	.....
Germans	154	119	Other Foreigners ..	95	104
Portuguese	3,204	1,233			
Scandinavian	44	38	Total	16,651	5,239

The nationality of teachers in all schools of the Islands, 1906, was as follows: Hawaiian, 89; Part Hawaiian, 124; American, 326; English, 61; Scandinavian, 25; Germans, 14; Portuguese, 17; Chinese, 18; Japanese, 9; other Foreigners, 21; Total, 704.

Church Statistics, 1907.

DENOMINATIONS	No. of Churches	No. of Pastors or Priests	No. of Members	No. of Sun. Schls	No. of Sunday School Scholars	Value of Church Property
Christian Church	4	1	150	4	150	\$ 13,500
Methodist Episcopal Church	17	17	994	28	1,362	58,740
Latter Day Saints	20	220	5,133	63	2,404	16,784
Reorganized Church ...	1	1	156	3	100	6,500
German Lutheran Ch'ch	2	2	250	2	28	50,000
Seventh Day Adventists	1	1	30	1	40	6,000
Prot. Episcopal Church	10	16	2,500	14	723	149,000
Buddhists (4 Sects)	35	40	46,000	.....	.....	80,200
Congregational Church.	97	83	6,569	91	7,287	759,915
Roman Catholic Church	105	31	35,000	15	2,400	300,000
Total	292	412	96,782	221	14,494	\$ 1,440,639

Vital Statistics, Territory of Hawaii.

For the Fiscal Year ending June 30, 1907. Summarized from Board of Health Reports.

ISLANDS, ETC.	Births	Marriages	Deaths
Honolulu	669	959	1,056
Other District of Oahu County	349	49	311
Hawaii County	915	267	673
Maui County	415	160	518
Kalawao County	20	33	98
Kauai County	480	212	366
Total, 1906-07	2,848	1,680	3,022
" 1905-06	2,672	1,238	2,798
" 1904-05	2,490	1,180	2,640

Population of Honolulu, 1900.

Compiled from U. S. Census Report by Dr. A. Marques.

Hawaiians and Haw'n born		Pacific Islanders.....	293
foreigners	19,023	Scandinavian	146
Chinese	6,842	French	80
Japanese.....	5,595	Spanish.....	72
American	2,846	Italian	54
Portuguese	2,410	Other Europeans.....	197
British.....	1,107	Various	88
German	553		
		Total	39,306

LAHAINA is said by early native writers to have had two other names in ancient times, it being first known as Honoapiilani. Subsequently this was changed to Lele, and in later times to Lahaina—as known to this day.

Import Values from United States for fiscal year ending June, 1907.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles.	Domestic Mdse.	Foreign Mdse.	
		Dutiable	Free
Agricultural Implements	\$ 22,999	.....	.....
Aluminum	2,282	.....	.....
Animals	124,220	.....	.....
Art Works	2,678	.....	.....
Books, Maps, etc.	85,023	\$ 34	.....
Brass, and manufactures of.	45,776	.....	.....
Breadstuffs	1,452,608	106	.....
Bricks	8,451	.....	.....
Brooms and Brushes.	19,663	.....	.....
Candles	11,646	.....	.....
Carriages, Cars, etc., and parts of.	329,711	.....	.....
Cement	15,881	.....	.....
Chemicals, Drugs, Dyes, etc.	441,871	205,307	3,200
Clocks, Watches, and parts of.	19,215	.....	.....
Coal and Coke	25,497	.....	.....
Cocoa and Chocolate.	10,755	.....	.....
Coffee, prepared	12,118	.....	300
Copper and manufactures of.	44,286	.....	.....
Cork, manufactures of.	5,633	.....	.....
Cotton, manufactures of.	1,606,157	12,133	.....
Earthen, Stone and Chinaware.	60,216	6,255	.....
Eggs	14,943	.....	.....
Feathers	981	.....	.....
Fertilizers	698,241	.....	.....
Fibers, Textile Grasses, man. of.	149,540	182	.....
Fish	271,673	4,406	.....
Fruits and Nuts.	183,022	863	.....
Furniture of Metal.	11,852	.....	.....
Glass and Glassware.	104,320	572	.....
Gunpowder and other Explosives.	63,977	.....	.....
Hair and manufactures of.	5,909	.....	.....
Hay	188,087	.....	.....
India Rubber, manufactures of.	113,824	.....	.....
Instruments, etc., for scientific purp.	104,857	.....	.....
Iron and Steel and manufactures of.	89,894	.....	.....
Sheets and Plates, etc.	328,423	.....	.....
Builder's Hardware, etc.	293,943	.....	.....
Machinery, Machines, parts of.	601,147	.....	.....
Nails, Spikes, Pipes, etc.	523,523	.....	.....
Jewelry & man'frs., Gold & Silver. ..	7,267	255	.....
Lamps, Chandeliers, etc.	39,059	.....	.....
Lead and manufactures of.	20,322	.....	.....
Leather and manufactures of.	513,686	557	.....
Lime	59,203	.....	.....
Malt	17,459	.....	.....
Marble, Stone and manufactures of. ..	13,369	.....	.....
Matches	26,288	.....	.....

Import Value from United States for 1907—Continued.

Articles.	Domestic Mdse.	Foreign Mdse.	
		Dutiable	Free
Musical Instruments	\$ 45,220	\$ 433	.....
Naval Stores	17,791	.....	.....
Nursery Stock	2,153	.....	.....
Oil Cloths	13,119	.....	.....
Oils; Animal, Mineral, Crude.....	649,875	.....	.....
Refined, etc.	352,314	.....	.....
Vegetable	36,034	3,149	\$ 6,969
Paints, Pigments and Colors.....	110,030	.....	.....
Paper and manufactures of.....	253,206	101	.....
Perfumery, etc.	8,699	4	.....
Plated Ware	16,589	.....	.....
Provisions, etc., Beef Products	46,602	.....	.....
Hog and other Meat Products..	260,622	.....	.....
Dairy Products	309,058	.....	.....
Rice	34,144	.....	.....
Salt	7,960	.....	.....
Seeds	6,573	.....	.....
Shells	198	.....	.....
Silk and manufactures of.....	54,744	80	.....
Soap; Toilet and other.....	98,762	.....	Free
Spices .....	.....	.....	.....
Spirits, etc., Malt Liquors.....	114,788	843	.....
Spirits, distilled	149,217	20,780	.....
Wines	294,004	12,968	.....
Starch	15,677	.....	.....
Straw and Palm Leaf, man. of.....	36,027	81	.....
Sugar, Molasses and Confectionery..	134,869	575	.....
Tea .....	.....	.....	11,973
Tin and manufactures of.....	48,996	.....	3,435
Tobacco, manufactures of.....	569,940	4,796	.....
Toys	26,489	693	.....
Trunks, Valises, etc.....	28,704	.....	.....
Varnish	11,409	.....	.....
Vegetables	202,526	2,928	.....
Vinegar	8,216	.....	.....
Wood and manufactures of.....	.....	252	.....
Timber and unmanufactured....	41,320	.....	.....
Lumber, Shingles, etc.....	680,068	.....	.....
Doors, Sash, Blinds and all other	111,694	.....	.....
Furniture, n. e. s.....	102,951	.....	.....
Wool, manufactures of.....	261,195	5,414	.....
Zinc and manufactures of.....	5,419	.....	.....
All other articles	150,595	803	111
Total	\$14,124,376	\$ 285,361	\$ 25,988

**Value Domestic Mdse. shipments to the United States from
Hawaii for fiscal years ending June 30, 1906, and 1907.**

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles	1906	1907
Animals	\$ 310	\$ 3,000
Art Works, Paintings, etc.	8,103	5,802
Beeswax	6,745	4,373
Books and printed matter	10,486	13,091
Brass and manufactures of	3,127	7,522
Breadstuffs	8,878	6,530
Carriages, etc., and parts of	13,930	19,688
Chemicals, drugs, etc.	15,277	13,160
Coffee	248,618	129,249
Copper and manufactures of	3,065	10,968
Cotton and manufactures of	16,213	5,931
Earthenware, etc.	599	1,100
Fibers and textiles	9,649	14,997
Fish	481	1,332
Fruits and nuts	287,603	393,979
Glass and glassware	6,318	8,249
Hides and skins	126,425	141,883
Honey	34,048	26,680
India Rubber, manufactures of	3,125	3,268
Instruments for science purposes, etc.	1,557	2,034
Iron, steel and manufactures of	25,962	3,881
Machinery and parts of	17,417	53,030
All other manufactures of iron, etc.	24,085	41,234
Jewelry	18,916	22,997
Leather and manufactures of	22,116	22,874
Marble and stone	1,283	1,093
Meat and dairy products	7,499	8,200
Molasses	177	355
Musical instruments and parts	5,614	1,587
Oils, paints, varnish, etc.	2,094	989
Paper and manufactures of	1,988	3,429
Provisions, etc.	7,499	.....
Rice	223,012	147,439
Silk, manufactures of	10,127	4,762
Spirits, Wines, etc.	2,400	8,307
Straw and palm leaf, manufactures of	559	2,579
Sugar, brown	23,840,803	26,860,002
Sugar, refined	1,654,624	832,995
Tobacco, manufactures of	1,764	1,914
Toys	748	544
Vegetables	3,343	1,921
Wood and manufactures of	47,543	63,261
Wool, raw	45,883	54,548
Wool, manufactures of	8,358	4,808
All other articles	72,092	98,996
Total shipments domestic merchandise	\$26,850,463	\$29,054,581
Total shipments foreign merchandise	31,736	17,232
Total to United States	\$26,882,199	\$29,071,813

Hawaii's Commerce with Foreign Countries.

Total Import and Export Values for 1906 and 1907.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Countries.	Imports.		Exports.	
	1906	1907	1906	1907
Argentina.....				\$ 1,000
Austria-Hungary.....		\$ 346		
Belgium.....	\$ 6,806	3,572		
Canada.....	22,501	47,392	\$ 15,303	14,444
Great Britain.....	424,976	483,341	5,512	44,230
Germany.....	171,497	348,667	391	340
France.....	9,732	14,210		
Italy.....	1,366	382		
Netherlands.....	3,429	5,676		
Norway.....	208	265		
Portugal.....	484	419		
Spain.....	3,850	3,919		
Sweden.....	3	961		
Chile.....	448,608	325,637	2,778	
China.....	3,984	4,129		3,600
East Indies.....	415,131	664,440		1,450
Hong Kong.....	245,244	296,975	2,004	994
Japan.....	1,247,470	1,557,441	20,080	141,240
Australasia.....	262,594	310,574	8,348	10,236
Oceania.....	1,182	71,856	742	2,520
Korea.....				9,714
Philippines.....	6,051	11,454	2,155	146
United States*.....	12,036,675	14,435,725	26,882,199	29,071,813
All other.....	126	53		
Total.....	\$15,311,917	\$18,587,434	\$26,939,512	\$29,301,727

* Not including coin shipments.

Exports and Imports for fiscal year ending June 30, 1907.

Exports—Domestic produce to United States.....	\$29,054,581
Foreign produce to United States.....	17,232
Coin shipments to United States.....	1,968
Domestic produce to Foreign Countries.....	183,981
Foreign produce to Foreign Countries.....	45,933
Total export value.....	\$29,303,695
Imports—Domestic produce from United States.....	\$14,124,376
Foreign produce from United States.....	311,349
Coin shipments from United States.....	75,000
Produce from Foreign Countries.....	4,151,709
Total import value	\$18,662,434

**Quantity and Value of Principal Articles of Domestic Produce
Shipped to U. S. for the fiscal year ending June 30, 1907.**

Articles		Quantity	Value
Sugar, raw	pounds.....	804,294,041	\$26,860,002
Sugar, refined	"	17,765,770	832,995
Coffee, raw	"	1,098,374	128,875
Rice	"	3,324,107	147,439
Fibers .....	.....	.....	14,997
Fruits, green .....	.....	.....	115,771
canned .....	.....	.....	267,629
all other .....	.....	.....	10,441
Honey .....	.....	.....	26,680
Beeswax	pounds.....	14,136	4,373
Hides and skins.....	"	1,213,304	141,883
Wool, raw	"	336,159	54,548
Taliow	"	188,282	7,719
Timber, lumber & unmnfrd wood..	.....	.....	13,318
Molasses	gallons.....	6,917	355

Comparative Table Importations from Japan, 1902-1906.

Courtesy of Dr. A. Marques.

Articles.	1902-1903.	1903-1904.	1904-1905.	1905-1906
Sake and Wines.....	\$205,526	\$ 171,856	\$154,366	\$201,668
Rice and its flour....	236,076	446,121	222,686	285,194
Vegetables	92,273	87,424	79,502	94,095
Sauces	118,155	138,540	115,747	140,472
Cotton Wares.....	52,413	50,302	48,225	73,036
Fish	61,608	78,131	80,088	69,006
Breadstuffs	20,420	24,096	18,930	28,263
Woodwork	25,170	24,499	24,030	21,830
Silks	24,206	23,495	27,129	49,119
Tea	14,239	15,883	10,173	14,936
Provisions	2,035	2,130	796	1,072
Coal (bituminous)...	.....	5,466	38,449	67,703
All others.....	118,470	137,112	142,530	200,076
Total	\$970,591	\$1,205,055	\$962,651	\$1,247,470

Coast Line Distance of Hawaiian Islands.

Courtesy of W. E. Wall, Government Survey Office.

	MILES		MILES
Distance around Hawaii.....	297	Distance around Molokai.....	100
" " Oahu	177	" " Lanai.....	53
" " Maui	146	" " Niihau.....	48
" " Kauai.....	106	" " Kahoolawe..	30

Total Coast line distance around the islands 957 miles.

Hawaiian Sugar Plantation Statistics.

Year	Sugar.		Molasses.		Total export Value.
	Pounds	Value.	Gallons.	Value.	
1875.....	25,080,182	\$ 1,216,388.82	93,722	\$ 12,183.85	\$ 1,228,572.68
1876.....	26,072,429	1,272,334.53	130,073	19,510.95	1,291,845.48
1877.....	25,575,965	1,777,529.57	151,462	22,719.30	1,800,248.87
1878.....	38,431,458	2,701,731.50	93,136	12,107.68	2,713,839.18
1879.....	49,020,972	3,109,566.66	87,475	9,622.52	3,119,185.91
1880.....	63,584,871	4,322,711.48	198,355	29,753.52	4,352,464.73
1881.....	93,789,483	5,395,399.54	263,587	31,630.44	5,427,020.98
1882.....	114,177,938	6,320,890.65	221,293	33,193.95	6,354,084.60
1883.....	114,107,155	7,112,981.12	193,997	34,819.46	7,147,800.58
1884.....	142,654,923	7,328,896.67	110,530	16,579.50	7,345,476.17
1885.....	171,350,314	8,356,061.94	57,941	7,050.00	8,363,111.94
1886.....	216,223,615	9,775,132.12	113,137	14,501.76	9,789,633.88
1887.....	212,763,647	8,694,964.07	71,222	10,522.76	8,705,486.83
1888.....	235,888,346	10,818,883.09	47,965	5,900.40	10,824,783.49
1889.....	242,165,835	13,089,302.10	54,612	6,185.10	13,095,487.20
1890.....	259,789,462	12,159,585.01	74,926	7,603.29	12,167,188.30
1891.....	274,983,580	9,550,537.80	55,845	4,721.40	9,555,258.20
1892.....	263,636,715	7,276,549.24	47,988	5,061.07	7,281,610.34
1893.....	330,822,879	10,200,958.37	67,282	5,928.96	10,206,887.33
1894.....	306,684,993	8,473,009.10	72,979	6,050.11	8,479,059.21
1895.....	294,784,819	7,975,590.41	44,970	3,037.83	7,978,628.24
1896.....	443,569,282	14,932,172.82	15,885	1,209.72	14,933,382.54
1897.....	520,158,232	15,390,422.13	33,770	2,892.72	15,393,314.85
1898.....	444,963,036	16,614,622.53	14,537	919.18	16,615,541.71
1899.....	545,370,537	21,898,190.97	11,455	358.55	21,898,549.52
1900*.....	344,531,173	13,919,400.21	120	10.00	13,919,410.21
1901**.....	690,882,132	27,094,155.00	93,820	4,615.00	27,098,770.00
1902.....	720,553,357	23,920,113.00	48,036	2,187.00	23,922,300.00
1903.....	774,825,420	25,310,684.00	10	1.00	25,310,685.00
1904.....	736,491,992	24,359,385.00	11,187	712.00	24,360,097.00
1905.....	832,721,637	35,112,148.00	26,777	1,282.00	35,113,430.00
1906.....	746,602,637	24,495,427.00	3,180	177.00	24,495,604.00
1907.....	822,014,811	27,692,997.00	6,917	355.00	27,693,352.00

* Five and one-half months to June 14. ** Fiscal year ending June 30.

Nationality of Plantation Labor, 1905-1906.

	1905	1906		1905	1906
Americans	654	614	Japanese	28,030	25,879
Portuguese	3,194	3,310	Koreans	4,893	3,675
Other Europeans....	455	456	Chinese	3,938	3,660
Hawaiians	1,711	1,742	Others	45	18
Porto Rican	2,029	1,949			
			Total	44,949	41,303

Hawaii's Annual Trade Balance, etc., from 1880.

Year.	Imports.	Exports.	Excess export Values.	Custom house Receipts.
1880.....	\$ 3,673,268.41	\$ 4,968,444.87	\$ 1,295,176.46	\$ 402,181.63
1881.....	4,547,978.64	6,885,436.56	2,337,457.92	523,192.01
1882.....	4,974,510.01	8,299,019.70	3,324,506.69	505,390.98
1883.....	5,624,240.09	8,133,343.88	2,509,103.79	577,332.87
1884.....	4,637,514.22	8,856,610.30	4,219,096.08	551,736.59
1885.....	3,830,544.58	9,158,818.01	5,328,273.43	502,337.38
1886.....	4,877,738.73	10,565,885.58	5,688,146.85	580,444.04
1887.....	4,943,840.72	9,707,047.33	4,763,206.61	595,002.64
1888.....	4,540,887.46	17,707,598.76	7,166,711.30	546,142.63
1889.....	5,438,790.63	13,874,341.40	8,435,560.77	550,010.16
1890.....	6,962,201.13	13,142,829.48	6,180,628.35	695,956.91
1891.....	7,439,482.65	10,258,788.27	2,819,305.62	732,594.93
1892.....	4,028,295.31	8,060,087.21	4,031,791.90	494,385.10
1893.....	4,363,177.58	10,818,158.09	6,454,980.51	545,754.16
1894.....	5,104,481.43	9,140,794.56	4,036,313.13	522,855.41
1895.....	5,339,785.04	8,474,138.15	3,134,353.11	547,149.04
1896.....	6,063,652.41	15,515,230.13	9,451,577.72	656,895.82
1897.....	7,682,628.09	16,021,775.19	8,339,147.10	708,493.05
1898.....	10,368,815.09	17,346,744.79	6,977,929.70	806,675.70
1899.....	16,069,576.96	22,628,741.82	6,559,164.86	1,295,628.95
1900*.....	10,231,197.58	14,404,496.16	4,173,298.58	597,897.14
1901**.....	24,964,693.43	29,342,697.00	4,378,003.57	1,264,862.78
1902.....	22,036,583.00	24,793,735.00	2,757,152.00	1,327,518.23
1903.....	13,982,485.00	26,275,438.00	12,292,953.00	1,193,677.83
1904.....	15,784,691.00	25,204,875.00	9,420,184.00	1,229,338.15
1905.....	14,718,483.00	36,174,526.00	21,456,043.00	1,043,340.38
1906.....	15,639,874.00	26,994,824.00	11,354,950.00	1,218,764.13
1907.....	18,662,434.00	29,303,695.00	10,641,261.00	1,458,843.48

* Five and one-half months to June 14th. ** Twelve and one-half months to June 30, 1901. Imports from U. S. ports for 1901 estimated at \$22,000,000, and for 1902 at \$19,000,000.

Summary of Insurance Business, Territory of Hawaii, for the year 1906.

From Report of Insurance Commissioner,

Class.	Amount Written	Amount Premiums	Losses and Claims paid
Fire	\$42,734,296	\$ 742,709	\$ 124,671
Marine	55,350,840	475,331	256,455
Life, new	} 3,609,625	147,690	} 393,263
" renewals		833,351	
Accident, etc. . . . .	.....	24,432	8,156
Surety . . . . .	.....	24,571	811
Liability . . . . .	.....	9,325	2,348
Plate Glass . . . . .	.....	1,917	.....
Burglary . . . . .	.....	26	.....
Total	\$101,694,751	\$ 2,259,352	\$ 785,704

Table of Receipts, Expenditures, and Public Debt of Hawaii,
for Biennial Periods up to 1894, then Annually.

(Latter years from Auditor's Report.)

Years.	Revenue.	Expenditures.	Cash Balance in Treasury.	Public Debt.
1856.....	\$ 419,288.16	\$ 424,778.25	\$ 28,096.84	\$ 22,000.00
1858.....	537,223.86	599,879.61	349.24	60,679.15
1860.....	571,041.71	612,410.55	13,127.52	128,777.32
1862.....	528,039.92	606,893.33	507.40	188,671.86
1864.....	538,445.34	511,511.10	22,583.29	166,649.09
1866.....	721,104.30	566,241.02	169,059.34	182,974.60
1868.....	825,498.98	786,617.55	163,576.84	120,815.23
1870.....	834,112.65	930,550.29	61,580.20	126,568.68
1872.....	912,130.74	969,784.14	56,752.41	177,971.29
1874.....	1,136,523.95	1,192,511.79	746.57	355,050.76
1876.....	1,008,956.42	919,356.93	89,599.49	459,187.59
1878.....	1,151,713.45	1,110,471.90	130,841.04	444,800.00
1880.....	1,703,736.88	1,495,697.48	338,880.41	388,900.00
1882.....	2,070,259.94	2,282,599.33	126,541.05	299,200.00
1884.....	3,092,085.42	3,216,406.05	2,220.42	898,800.00
1886.....	3,010,654.61	3,003,700.18	9,174.85	1,065,600.00
1888.....	4,812,575.96	4,712,285.20	109,465.60	1,936,500.00
1890.....	3,632,196.85	3,250,510.35	491,152.10	2,599,502.94
1892.....	3,916,880.72	4,095,891.44	312,141.38	3,217,161.13
1894.....	3,587,204.98	3,715,232.83	184,113.53	3,417,459.87
1895.....	1,972,135.43	1,854,053.08	69,225.76	3,574,030.16
1896.....	2,050,729.41	2,284,179.92	302,676.27	3,764,335.03
1897.....	2,383,070.78	2,137,103.38	315,193.16	3,914,608.35
1898.....	2,659,434.16	2,617,822.89	456,804.43	4,390,146.05
1899.....	2,709,489.12	2,299,937.57	740,280.21	4,457,605.85
1899.....	3,854,231.50	3,038,638.38	1,531,784.29	4,890,351.49
1900.....	2,772,871.87	3,727,926.28	624,471.25	4,226,374.61
1901.....	2,140,297.36	2,576,685.53	287,131.30	939,970.31
1902.....	2,473,172.81	2,382,968.90	77,914.36	1,093,970.31
1903.....	2,387,715.88	2,603,194.20	56,613.29	2,185,000.00
1904.....	2,415,356.33	2,844,054.81	68,592.03	3,317,000.00
1905.....	2,354,783.37	2,240,731.55	59,408.49	3,861,000.00
1906.....	3,320,998.90	2,512,675.89	335,331.37	3,818,000.00
1907.....	2,716,624.00	2,665,845.74	348,216.51	3,718,000.00

Hawaii's Bonded Debt, June 30, 1907.

Stock A 5 per cent. Bonds (Act of 1896).....	\$ 53,000
Fire Claims Bonds issued.....	315,000
Public Improvement 4½% Bonds, 1903-04.....	1,000,000
Public Improvement 4¼% Bonds, 1904-05.....	1,000,000
Refund Bonds, 1905.....	600,000
Public Improvement 3½% Bonds.....	750,000

Total Bonds Outstanding.....\$3,718,000

INTERNAL TAXES FOR BIENNIAL PERIODS 1888-1894; SINCE, ANNUAL.

Periods	Real Estate	Personal Property	Poll	Income	Insurance	Dogs	Car'ages	Penalty and Costs	Roads Carts and Bicycles	School	Totals
1888.....	\$ 252,362	\$ 299,974	\$ 63,115	\$.....	\$ 6,279	\$ 11,985	\$11,835	\$.....	\$ 120,872	\$ 119,565	\$ 885,987
1890.....	339,399	329,908	69,116	.....	3,063	14,100	13,940	.....	132,285	131,160	1,032,963
1892.....	358,745	341,205	78,964	.....	4,150	13,660	14,628	.....	152,137	151,906	1,115,401
1894.....	338,894	213,126	79,990	.....	3,867	11,741	11,986	5,476	152,268	152,247	1,068,592
1894 9 months.	167,083	151,580	39,050	.....	1,850	4,698	4,427	3,922	74,891	75,082	522,583
1895.....	196,608	164,272	43,663	.....	1,803	5,971	5,435	7,297	84,183	83,470	592,692
1896.....	240,971	210,164	46,655	.....	1,837	6,302	5,889	7,255	90,297	89,443	608,841
1897.....	246,828	242,719	47,973	.....	974	7,313	5,849	10,375	101,858	95,814	759,703
1898.....	268,203	266,621	49,586	.....	2,185	6,248	5,717	8,476	105,814	98,974	811,818
1899.....	384,594	377,075	54,828	.....	2,883	6,141	6,253	10,155	116,374	109,814	1,068,117
1900.....	440,265	487,078	67,119	.....	3,224	5,377	7,241	9,280	141,342	134,232	1,295,158
1901.....	521,451	571,964	50,829	279,743	3,810	4,589	8,397	8,984	108,829	101,258	1,659,854
1902.....	560,111	584,112	46,366	192,506	4,663	3,864	9,072	11,345	100,681	92,734	1,605,460
1903.....	609,241	593,288	49,490	187,497	4,681	4,404	9,864	13,267	107,650	98,980	1,678,362
1904.....	615,127	562,382	49,531	155,786	56	4,543	9,427	13,669	107,885	99,062	1,617,468
1905.....	663,000	667,850	49,020	326,733	.....	5,161	9,670	14,738	107,156	98,040	1,941,383
1906.....	651,838	617,240	50,069	146,756	.....	5,382	*1,240	18,876	129,817	100,138	1,721,356

* Automobiles.

Annual Taxes, from 1896, showing per capita rate collected.

	Taxes collected	Per capita*	Taxes collected	Per capita*
1896.....	\$ 698,844	\$ 6.32	1901.....	\$1,659,854..... \$ 10.77
1897.....	759,707	6.54	1902.....	1,605,460..... 10.42
1898.....	811,818	6.45	1903.....	1,678,362..... 10.59
1899.....	1,068,117	7.11	1904.....	1,617,468..... 10.50
1900.....	1,295,158	8.41	1905.....	1,941,383..... 12.60
			1906.....	1,721,356..... 11.17

* Omitting fractions.

SUMMARY OF METEOROLOGICAL OBSERVATIONS, 1906-1907.

Compiled from U. S. Weather Bureau Records, by Wm. B. Stockman, Section Director.

(Continued from preceding Annuals.)

MONTH	BAROMETER 8 a.m. 8 p.m.	RAIN- FALL	REL. HUM. 8 a.m. 8 p.m.	MEAN TEMPERATURE				ABSO. HUM. Gr. to Cu. ft.	Cloud Amt.	Wind Force
				Max.	6 a.m.	2 p.m. 9 p.m.	Max of Max. and Min.			
July	30.02 30.00	1.42	65	83.1	74.4	81.5	77.9	6.886	3.9	8.8
August	30.00 29.98	0.64	65	83.5	74.7	82.0	78.7	6.997	3.9	8.8
September	30.00 29.99	1.19	66	83.8	74.8	82.1	78.6	7.209	3.9	8.2
October	30.00 29.99	0.84	68	82.9	74.4	81.5	77.7	7.194	3.8	7.9
November	29.97 29.96	5.69	71	80.3	71.4	78.6	75.0	6.923	5.0	7.5
December	29.99 29.97	10.02	76	77.2	70.4	75.7	72.2	6.848	5.9	10.9
January	29.91 29.90	12.44	82	67.2	69.6	75.0	72.2	7.146	6.8	7.6
February	30.04 30.03	5.87	72	77.3	69.2	75.5	71.5	6.411	4.2	8.8
March	30.02 30.01	2.14	68	75.6	67.2	73.0	69.6	5.850	5.7	10.7
April	30.08 30.05	0.64	63	72.2	67.5	73.6	70.3	5.616	3.7	9.7
May	30.02 30.00	0.67	68	80.5	70.8	79.3	75.4	6.736	5.0	7.5
June	30.01 29.99	0.49	66	82.3	73.3	80.8	75.1	6.973	4.2	7.8
Year	30.00 29.99	42.05	69	80.1	71.5	78.4	73.7	6.732	4.7	8.7

TABLE OF RAINFALL, PRINCIPAL STATIONS.

Compiled from Weather Bureau Reports.

Stations	Observer	1906					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea	C. C. Kennedy	12.31	19.51	6.54	4.12	15.55	9.98
Hilo (Town)	L. C. Lyman	14.52	20.62	7.11	4.58	17.92	11.65
Kaumana	J. E. Gamalielson	14.73	29.22	7.84	6.10	18.13	17.45
Pepeekeo	W. H. Rogers	9.01	17.43	8.13	3.84	15.88	13.53
Hakalau	J. M. Ross	11.13	22.04	8.59	4.00	17.85	17.03
Laupahoehoe	E. W. Barnard	11.57	16.87	5.39	5.72	11.05	17.77
Ookala	W. G. Walker	9.53	13.79	3.61	3.14	8.05	16.15
Kukaiau	E. Madden	8.11	11.30	2.38	1.81	6.90	15.60
Paauhau	Jas. Gibb	7.03	9.10	1.47	1.09	6.02	15.31
Honokaa	S. Gundelfinger	7.08	8.48	1.52	1.04	3.50	18.24
Waimea	Jas. Laird	2.28	3.56	0.26	2.15	4.85	16.10
Kohala	Dr. B. D. Bond	7.68	5.69	2.76	2.49	3.87	13.71
Holualoa	L. S. Aungst	6.42	8.26	3.25	6.18	4.49	7.76
Kealakekua	Rev. S.H. Davis	4.29	9.76	6.41	9.97	3.60	5.90
Naalehu	C. Wolters	1.20	5.54	0.67	1.34	13.95	6.82
Pahala	Haw. Agr. Co.	0.46	8.25	0.26	0.98	14.48	7.01
Volcano House	Geo. Lycurgus	5.66	12.18	1.94	2.37	10.35	11.25
Pahoa	G. Kamahele	12.12	20.42	.....	.....	.....	13.46
Kapoho	H. J. Lyman	6.80	10.24	6.59	3.91	13.04	12.14
MAUI							
Haleakala Ranch	L. von Tempsky	1.86	7.18	1.60	8.39	4.64	35.43
Pu'uomalei	A. McKibbin	3.92	11.47	3.84	5.78	6.03	19.51
Makawao	F. W. Hardy	3.21	12.67	2.16	16.21	7.26	42.44
Kula	Mrs. D. von Tempsky	1.22	2.44	1.41	5.61	1.86	10.90
Haiku	D. D. Baldwin	4.58	10.44	6.58	5.76	4.91	17.37
Kipahulu	H. Neubaur	4.34	9.55	2.10	10.65	6.12	.....
Nahiku	C. O. Jacobs	13.41	24.64	9.74	11.70	23.09	27.49
Wailuku	Bro. Frank	0.73	1.41	0.52	1.84	2.38	10.49
OAHU							
Honolulu	U. S. Weather Bureau	1.42	0.64	1.19	0.84	5.69	10.02
U. S. Exp. Stn.	D. L. Van Dine	3.36	2.93	3.79	2.97	7.49	14.85
Kinau Street	W. R. Castle	1.44	0.95	1.92	0.89	6.05	12.63
Manoa	F. N. Parker	7.82	8.65	7.82	7.74	10.94	25.69
Kalihi-uka	Dr. Geo. H. Huddy	8.51	10.23	6.29	8.24	11.73	24.64
Nuuanu Ave.....	W. W. Hall	2.96	2.28	3.02	2.21	6.98	13.04
Electric Lt. St.	Frank De Mello	4.49	4.54	4.53	3.62	10.18	15.42
Luakaha	L. A. Moore	9.89	10.59	9.01	9.44	16.11	25.89
Waimanalo	A. Irvine	1.52	1.40	1.21	1.76	5.76	15.81
Maunawili	Jno. Herd	3.52	4.06	3.94	4.47	11.34	16.61
Ahuimanu	H. R. Macfarlane	4.62	4.37	5.54	7.11	11.88	3.84
Kahuku	R. T. Christophersen	1.27	3.07	2.44	2.97	7.25	26.91
Ewa Plantation	R. Muller	0.40	0.21	0.44	0.35	5.34	10.09
Wahiawa	H. C. Brown	3.08	4.23	2.47	3.71	8.85	13.22
Waiawa	W. R. Waters	1.99	2.54	2.74	2.56	7.48	13.07
KAUAI							
Grove Farm	G. N. Wilcox	1.75	5.79	2.12	3.09	3.12	13.95
Kealia	A. W. Peterson	0.99	3.24	2.24	3.33	3.77	6.39
Kilauea	L. B. Boreiko	1.85	3.38	3.34	3.77	3.72	5.74
Hanalei	E. G. K. Deverill	2.63	7.45	1.98	7.30	6.48	13.69
Eleele	McBryde Sugar Co.	0.23	2.46	1.05	0.76	2.30	4.49
Waiuku	F. L. Zoller	3.26	7.32	3.50	4.53	4.22	10.46

Throughout the Hawaiian Islands, 1906-07.

By Wm. B. Stockman, Section Director. Continued from last Annual.

Locality	Feet Elev.	1907						
		Jan.	Feb.	Mar.	April	May	June	Annual
HAWAII								
Waiakea..	50	4.63	12.29	20.70	6.58	5.90	8.50	126.61
Hilo.....	100	5.69	11.25	13.94	5.50	4.76	10.99	128.53
Kaumana.....	1050	6.59	14.01	21.58	8.13	8.59	14.00	166.37
Pepeekeo.....	100	5.93	12.81	11.41	6.33	5.35	9.06	118.71
Hakalau.....	200	8.14	17.28	14.50	8.75	9.35	11.20	149.86
Laupahoehoe.....	500	2.63	16.08	20.40	11.92	5.85	11.06	136.31
Ookala.....	400	2.98	11.95	15.94	13.41	3.69	9.44	111.68
Kukaiau.....	250	2.81	10.34	13.60	9.81	2.34	4.40	89.40
Paaupahu Mill.....	300	3.02	9.62	9.45	6.79	1.87	2.40	73.17
Honokaa.....	470	2.89	8.71	9.17	5.39	1.48	2.32	69.82
Kamuela.....	2720	1.28	3.87	2.67	2.00	2.03	2.61	43.66
Kohala Mission.....	521	3.63	9.48	5.26	4.12	2.18	3.80	64.67
Holualoa.....	1350	5.07	3.79	4.23	5.17	4.69	10.40	69.71
Kealakekua.....	1580	6.75	6.36	4.24	2.62	5.56	12.23	77.69
Naalehu.....	650	9.94	7.22	4.53	1.44	2.00	4.25	58.90
Pahala.....	850	12.30	4.61	3.47	1.01	1.75	0.50	55.08
Kilauea Crater.....	4000	8.97	10.90	12.50	5.65	4.10	5.40	91.27
Puna Plantation.....	600	9.69	15.20	13.54	7.02	4.25	11.91	.....
Kapoho.....	110	9.31	12.73	9.91	4.09	3.23	7.59	99.58
MAUI								
Haleakala Ranch.....	2000	5.39	9.08	2.72	6.04	3.35	0.29	85.97
Pu uomalei.....	1400	3.32	6.12	6.67	8.85	1.63	1.75	78.89
Makawao.....	1700	9.23	11.80	5.66	9.12	3.57	0.45	123.78
Erehwon.....	4000	5.45	7.30	.00	2.59	5.29	1.71	45.78
Haiku.....	700	4.24	6.06	6.75	6.83	1.80	3.33	78.65
Kipahulu.....	.....	.....	.....	.....	.....	.....	.....	.....
Nahiku (lower).....	850	18.30	16.07	15.71	19.85	4.12	13.87	197.99
Wailuku.....	250	13.45	8.68	1.75	1.53	0.37	0.18	43.33
OAHU								
U. S. W'th'r B're'u.....	108	12.44	5.87	2.14	0.64	0.67	0.49	42.05
Kewalo-uka.....	350	12.27	7.50	4.99	1.51	1.92	2.21	65.79
Kinaiu Street.....	50	11.40	7.26	2.32	0.54	0.97	0.40	46.77
Woodlawn Dairy.....	285	14.78	5.98	8.91	2.65	2.91	4.14	108.03
Kalihi Valley.....	485	26.92	.....	9.61	3.36	.....	.....	.....
Nuuanu Avenue.....	50	12.58	6.91	4.42	1.23	1.49	1.26	58.38
Nuuanu Elec. St'n.....	405	10.16	8.76	4.59	2.00	2.08	5.71	76.08
Nuuanu Wat'r W's.....	850	16.92	13.74	14.68	8.29	9.90	14.15	158.61
Waimanalo.....	25	22.25	7.07	2.83	2.37	9.98	1.38	73.34
Maunawili.....	250	25.74	14.83	5.73	5.17	16.78	6.87	119.06
Ahuimanu.....	350	32.27	10.43	4.82	3.29	14.93	5.09	128.19
Kahuku.....	25	10.79	5.34	4.20	2.17	2.09	2.99	51.49
Ewa.....	50	13.77	4.29	2.38	0.04	3.04	0.31	40.66
Wahiawa.....	870	16.13	11.01	7.08	1.31	4.53	1.80	77.42
Waiawa.....	675	14.19	6.90	4.67	2.10	1.89	2.60	62.73
KAUAI								
Lihue.....	200	23.30	5.71	10.96	2.02	5.79	2.24	79.84
Kealia.....	15	15.69	5.20	7.56	1.83	5.18	1.70	57.12
Kilauea.....	342	26.28	3.70	16.68	1.60	10.40	5.13	85.89
Hanalei.....	10	25.88	5.89	24.25	2.12	9.33	9.74	116.74
Eleele.....	150	18.95	2.95	10.29	0.57	1.74	1.37	4"
Koloa.....	100	23.06	5.78	14.21	2.08	2.29	2.46	.....

TABLE OF ANNUAL LICENSE FEES.

Territory of Hawaii.

<i>Alcohol</i>	\$ 50.00	<i>Hotel and Restaurant</i>	50.00
<i>Awa</i> —Honolulu	500.00	<i>Insurance Agent</i>	2.00
Hilo, Waluku or Lahaina	100.00	<i>Kerosene Storage</i>	200.00
All other	50.00	<i>Lodging and Tenement House</i>	2.00
<i>Auction</i> —Honolulu	600.00	<i>Laundry</i>	25.00
All other	15.00	<i>Livery Stable</i> —Honolulu	50.00
<i>Banking</i> —Honolulu	750.00	All other	25.00
Hilo	500.00	<i>Liquor</i> —1st class, wholesale..	1000.00
All other	250.00	2nd class, retail saloon or hotel	750.00
<i>Billiard</i> —each table	25.00	Restaurant	500.00
<i>Bowling Alley</i> —each alley... 25.00		For premises outside 5 mile radius from 1st to 3d class postoffice..	250.00
<i>Beef Butcher</i> —"Slaughter and Sell," Honolulu	100.00	3rd class, not over 3 days, per day	15.00
All other	20.00	4th class—wine	5.00
<i>Beef Butcher</i> —"Sell"	10.00	5th class—manufacturing..	5.00
<i>Boat</i> —With 4 or more oars.. 8.00		<i>Milk</i>	2.50
With less than 4 oars.... 4.00		<i>Merchandise</i>	25.00
<i>Boatman</i>	1.00	— Broker	100.00
<i>Barber</i>	10.00	— Peddler	50.00
<i>Brewery</i>	250.00	<i>Notary Public</i> —Honolulu ...	10.00
<i>Certificate of Authority</i> 10.00		All other	5.00
<i>Car License Tax</i> —per car.... 10.00		<i>Pork Butcher</i> —"Sell"	10.00
<i>Custom House Broker</i> 50.00		— "Slaughter and Sell," Honolulu	40.00
<i>Collection Agency</i>	25.00	All other	20.00
<i>Dray, Wagon, etc.</i>	2.50	<i>Peddling Cake</i>	25.00
<i>Driver</i>	1.00	<i>Pawnbroker</i>	50.00
<i>Dyeing or Cleaning, etc.</i> 25.00		<i>Public Show</i> —per show..... 5.00	
<i>Emigrant Agent</i>	500.00	<i>Poisonous Drug</i>	50.00
<i>Employment Agency</i>	25.00	<i>Second Hand Dealer, etc.</i> 25.00	
<i>Foreign Corporation</i>	300.00	<i>Stock and Share</i>	100.00
<i>Farrier and Horse-shoer</i> 5.00		<i>Steam Laundry</i>	50.00
<i>Fishing Boat</i>	5.00	<i>Social Club Tax</i>	200.00
<i>Garage</i> —Honolulu	50.00		
All other	25.00		
<i>Hack and Passenger Vehicle</i> —per passenger	1.00		

Seating capacity of principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street.....	1,500
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street.....	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
Progress Hall, corner Fort and Beretania streets.....	500
Hawaiian Opera House, King street.....	1,000
The Orpheum, Fort street.....	945
M. C. Association Hall, Hotel street.....	250

NOTABLE TRIPS OF PACIFIC OCEAN STEAMERS.

TRIP.	MILES.	STEAMER.	DATE.	D.	H.	M.
San Francisco to Honolulu,	2100	China	Aug., 1899	5	9	55
" " "	2100	Korea	Jan. 1903	4	22	15
" " "	2100	Siberia	Aug., 1905	4	19	20*
Honolulu to San Francisco,	2100	Mariposa	May, 1898	5	22	0
" " "	2100	China	Nov., 1902	5	2	16*
" " "	2100	Nippon Maru	Jan., 1900	5	2	21
San Francisco to Yokohama,	4764	China	Oct., 1903	9	4	17*
Yokohama to San Francisco,	4537	Korea	Sept., 1905	10	11	0
" " "	4537	Siberia	Oct., 1905	10	10	28*
Yokohama to Honolulu,	3400	China	Dec., 1897	8	6	15*
" " "	3400	Coptic	Feb. 1902	9	2	17
San Francisco to Sydney,	7297	Alameda	Dec., 1895	21	10	0*
Auckland to Sydney,	1286	Sonoma	Jan., 1902	3	8	40*
Auckland to Honolulu,	3810	Mariposa	April, 1882	11	10	0*
" " "	3810	Alameda	July, 1897	11	10	35
Sydney to Auckland,	1286	Zealandia	Dec., 1890	3	20	51*
Honolulu to Samoa,	2279	Mariposa	Jan., 1886	6	7	45
" " Victoria,	2342	Warrimoo	July, 1896	6	22	19
" " "	2342	Manuka	June, 1904	6	14	50*
Victoria to Honolulu,	2360	Warrimoo	Jan., 1896	7	1	9
" " "	2360	Maheno	Aug., 1906	6	12	5*
Vancouver to Sydney,	6999	Warrimoo	Nov., 1895	20	15	17*
Honolulu to Sydney,	4865	Manuka	July, 1904	13	16	55†
Sydney to Honolulu,	—	Miowera	Aug., 1906	14	0	30
" " "	4865	Manuka	July, 1905	14	17	12†
" " "	4865	Maheno	April, 1906	13	22	50†*
Sydney to Vancouver,	6670	Warrimoo	April, 1896	21	4	23*

* Best record trips.

† Including all stops.

Clipper Passages between Coast and Island Ports.

- 1852—Ship Challenge, 8 days from San Francisco to Honolulu.
- 1859—Ship Black Hawk, 9 days and 9 hours from San Francisco.
- 1861—Ship Fair Wind, 8 days and 17½ hours from San Francisco.
- 1861—Bark Comet, 10 days 19 hours from Honolulu to San Francisco.
- 1862—Ship Storm King, 9 days and 9 hours from San Francisco.
- 1863—Bark Yankee, 9 days 13 hours from San Francisco to Honolulu.
- 1879—Schooner Claus Spreckels, 9½ days from San Francisco to Kahului.
- 1880—Schooner Jessie Nickerson, 10 days from Honolulu to Humboldt.
- 1881—Brgtne. W. G. Irwin, 8 days and 17 hours from S. F. to Kahului.
- 1884—Schooner Emma Claudina, 9 days and 20 hours from Hilo to S. F.
- 1884—Schooner Rosario, 10 days from Kahului to San Francisco.
- 1884—Brgtne. Consuelo, 10 days from Honolulu to San Francisco.
- 1886—Bark Hesper, 9½ days from Honolulu to Cape Flattery.
- 1893—Bktne. Irmgard, 9 days and 16 hours from San Francisco.
- 1893—Bktne. S. G. Wilder, 9 days and 14 hours from San Francisco.
- 1898—Bark Rhoderic Dhu, 9½ days from Hilo to San Francisco.
- 1898—Ship S. P. Hitchcock, 9 days 7 hours from San Francisco.
- 1898—Bark S. C. Allen, 9½ days from San Francisco.
- 1902—Bktne. Lahaina, 12½ days from Eleele, Kauai, to Portland, Ore.
- 1903—Bark Annie Johnson, 8 days and 18 hours from San Francisco.
- 1905—Bark R. P. Rithet, 8 days from Honolulu to San Fran. (in March).

RECORD TRIPS BETWEEN HAWAIIAN AND DIS- TANT PORTS.

To or from Honolulu unless otherwise stated.

- 1846—Am. schr. Kamehameha III, 116 days from Boston.
- 1852—Am. sh. R. B. Forbes, 99 days from Boston.
- 1853—Am. sh. R. B. Forbes, 17 days to Hongkong.
- 1853—Am. sh. Sovereign of the Seas, 83 days to New York.
- 1853—Rus. wh. bk. Suomi, 13 days from Sitka.
- 1854—Am. sh. Golden Fleece, 100 days to New Bedford.
- 1854—Am. sh. Skylark, 104 days to New Bedford.
- 1854—Am. sh. N. B. Palmer, 81 days to New York.
- 1854—Am. schr. Lady Jane, 26 days from Callao.
- 1854—Am. schr. Sovereign (Ka Moi), 120 days from New London.
- 1854—Am. sh. Shooting Star, 83 days to New London.
- 1857—Br. sh. Kamehameha IV, 116 days from Liverpool.
- 1858—Am. sh. John Land, 97 days to New Bedford.
- 1858—Am. brg. Josephine, 103 days from New York.
- 1858—Am. schr. Vaquero, 96 days from Melbourne.
- 1859—Am. brg. Josephine, 6 days 13 hours to Jarvis Island.
- 1859—Am. brg. Josephine, 8 days 14 hours from Jarvis Island.
- 1859—Am. sh. Ella & Eliza, 14 days from Puget Sound.
- 1860—Am. bk. Behring, 89½ days to New Bedford.
- 1860—Am. schr. Nettie Merrill, 118 days from New York.
- 1860—Am. sh. E. F. Willetts, 89½ days from Lahaina to New Bedford.
- 1863—Br. sh. Jasper, 13 days from Victoria, B. C.
- 1864—Am. sh. Dreadnaught, 82 days to New Bedford.
- 1865—Haw. bk. R. W. Wood, 113 days from Bremen.
- 1865—Br. sh. Golden West, 32 days from Hongkong.
- 1866—Br. sh. Sailor's Home, 29 days 18 hours from Shanghai.
- 1867—Am. brg. Hesperian, 13 days from Tahiti.
- 1868—Am. brg. Morning Star, 11½ days from Marquesas.
- 1868—Am. sh. Syren, 105 days from Boston.
- 1868—Haw. bk. R. C. Wyllie, 115 days from Bremen; also in 1874.
- 1869—Am. sh. Lorenzo, 19½ days from Yokohama.
- 1871—Haw. bk. Ka Moi, 107 days from London.
- 1871—Am. bk. Agate, 34 days from Newcastle.
- 1873—Am. sh. Puritan, 16 days from Portland, Ore.
- 1875—Am. bktn. Jane A. Falkenberg, 13½ days from Astoria.
- 1875—Am. bktn. Jane A. Falkenberg, 16 days from Portland, and again in 1878.
- 1878—Am. bk. J. W. Seaver, 33 days from Newcastle via Tahiti.
- 1878—H. I. M. S. Cristoforo Columbo, 12 days from Tahiti.
- 1878—Br. bk. Glencoe, 123 days from Glasgow.
- 1878—Br. sh. Benlidi, 99 days from London.
- 1878—Br. sh. City of Perth, 115 days from Liverpool.
- 1879—Br. bk. Lalla Rookh, 122 days from Glasgow.
- 1880—Haw. schr. Kauikeaouli, 13 days 17 hours from Port Townsend.
- 1881—Nor. bk. Beta, 113 days from Drammen to Maalaea Bay, Maui.
- 1881—Br. bk. Oberon, 109 days from Liverpool.
- 1893—Am. bk. Amy Turner, 109 days from New York.
- 1895—Am. bk. Fresno, 14 days 10 hours from Port Townsend.

- 1896—Am. sh. Henry B. Hyde, 102 days from New York.
 1898—Am. bktn. Otterspool, 109 days from Liverpool.
 1899—Ger. sh. Marie Hackfeld, 105 days from Hamburg.
 1901—Haw. bk. Foohng Suey, 106 days from New York.
 1902—Am. sh. Erskine M. Phelps, 97 days from Norfolk, Va.
 1905—Ger. sh. Herzogin Sophia Charlotte, 107 days from Bremen.
 1905—Ger. sh. Herzogin Sophia Charlotte, 27 days to Sydney.
 1905—Am. sh. John Ena, 22 days 22 hours from Shanghai to Hilo.
 1906—Br. sh. Star of Bengal, 33 days from Newcastle.
 1906—Am. sh. John Ena, 99 days to Delaware Breakwater from Hilo.
 1907—Am. sh. Erskine M. Phelps, 101 days to Delaware Breakwater.
 1907—Ger. sh. Herzogin Cecilie, 107 days from Leith.

SOME NOTED INTER-ISLAND TRIPS.

- 1858—Haw. schr. Maria, 12 hours from Honolulu to Lahaina.
 1857—Haw. schr. Ka Moi, 8 hours from Lahaina to Honolulu.
 1857—Haw. sch. Liholiho, 11 hours from Kohala Pt. to Honolulu.
 1858—Haw. schr. Mary, 17 hours from Kawaihae to Honolulu.
 1866—Haw. schr. Alberni, 18 hours from Hilo to Honolulu.
 —Am. wh. sh. Josephine, 17 hours from Hilo to Honolulu.
 1868—Haw. schr. Maria, 32 hours from Hono. to Hilo (in light wind).
 1869—Haw. schr. Pauahi, 24 hrs. from Hilo to Honolulu (wharf to wharf).
 1862—Haw. schr. Nettie Merrill, 7 hours 10 min. from Lahaina to Honolulu.
 1860—Haw. schr. Nettie Merrill, 11 hours from Honolulu to Lahaina.
 1881—Am. schr. Claus Spreckels, 7 hours from Kahului to Honolulu.

Arrivals and Departures of Aliens, Honolulu, for Fiscal Year Ending June 30, 1907.

Nationality.	Arrivals.	Departures. (Estimated)
Japanese	20,796	9,076
Chinese	11	960
Korean	9	586
Spanish	2,251	580
Portuguese	1,328	235
All others	70	.....
Total	24,465	10,857

Estimated Japanese Population, June 30, 1907.

Estimate July 1, 1906, as per last ANNUAL.....	62,870
Excess of arrivals over departures to June 30, 1907.....	11,720
Total	74,590

HEIAUS AND HEIAU SITES THROUGHOUT THE HAWAIIAN ISLANDS.

OMITTING KOA'S, OR PLACES OF OFFERING TO KUULA.

(Continued from last issue.)

ISLAND OF HAWAII.

[In the compilation of this list I gratefully acknowledge the courtesy of Dr. W. T. Brigham and Mr. J. F. Stokes, of the Bishop Museum staff, for the use of the latter's notes through several districts, gathered in his recent tour of Hawaii, on this special quest. T. G. T.]

DISTRICT OF PUNA.

Names.	Location and Remarks.
Wahaula.....	Pulama.—The first constructed temple of Paaō, built, according to tradition, in the 11th century; rebuilt by Imaikalani, and later by Kalaniopuu who dedicated it to Kukailimoku. A walled structure of luakini class, 132x72 ft. in size; stands practically N. E. and S. W.; its walls still 8 to 10 ft. high. The last of the temples to give up its heathen worship upon the overthrow of idolatry in 1819. It is still one of the best conditioned heiaus in all the islands. See "Tales from the Temples" and plan.
Makaiwa.....	Pulama.—A small heiau, paved, of ipu olono class; its walls now fallen.
Waiaka.....	Kahaualea.—A small heiau 85 ft. long by 44 ft. wide on its upper end and 36 ft. on the lower end; near the cave of Luamakini, whose makai entrance is said to be in the adjacent pond of Waikupanaha. Class uncertain.
Makaoiki.....	Kahaualea.—A medium sized heiau now all destroyed; its stones taken for graves, of which a number adjoins its site on the east side.
Punaluu.....	Near spring of same name, in Kahaualea. A medium sized heiau 119x37 ft. with walls 3 to 5 ft. thick, of heavy lava slabs. Its south end wall is 17 ft. thick, standing 3 ft. above main floor, well leveled off with shore pebbles. Badly shattered by earthquake. Parts of walls yet standing are 4 to 8 ft. high, according to slope of the land.

- Niukukahi.....Kalapana.—One of the noted Puna heiaus, of which Kapihe was priest and Kuahailo its deity. Of pookanaka class. It is in a thick grove of coconut, breadfruit and other trees; its foundations and parts of walls still to be seen though in a jungle of undergrowth; said to be 150 ft. square.
- Napalua.....Near Waiokolea, Kalapana, a walled heiau about 80x100 ft. in size, said to have been under Kapihe's jurisdiction. Its walls were thrown down by the earthquake of 1868.
- Kikoa.....Kalapana, a small sized heiau of which little could be ascertained.
- Kumakaula.....Kaimu, a medium sized heiau of unknown class, a part of which only now remains. It was an ancient temple of the "truncated pyramidal" type, but destroyed in the fifties by one Kahuluhulu and his father, for their house site. In early years the tide came up to its base, and at its front was the noted place for akule. It is now one-eighth mile from the sea, the main road running by it, though this coast line for quite a distance subsided in 1868.
- Mahinaakaka.....Keahialaka, near Pohoiki, a platform heiau 41x75 ft. built up six ft. high on sea side of the road, standing practically east and west. Its north wall shows double construction for about half its height nearly the whole length, and the eastern end rounded out some ten or more feet, not quite the height of the main structure, but whether a feature for its ceremonies, or a protection from the sea, could not be determined. Its walls and floor in a much disturbed condition.
- Oolo.....Pohoiki, said to have been an important heiau; now entirely destroyed.
- Kalepa.....Or Kalelepa, near Kamaili, a heiau of the time of Keawemauhili, dedicated to Ku and Lono: of large size. Noted by Ellis as the probable Puna heiau where Cook's bones were deposited and worshipped. Almost wholly destroyed; its stones taken for roads.
- Kue.....At Kehena. Nothing left to mark its site.
- Aliipalala.....Kamaili, a small heiau of ipu olono class said to have had connection with Wahaula (listed below.) Entirely destroyed.
- Wahaula.....Kamaili. A reported very large heiau of ancient time; nothing now remains but a portion of its smooth pebbled floor. The Kamaili people claim that part of the well known heiau.

of same name, at Pulama, was built with stones from this temple, hence its name Wahauala.

- Pulena..... Keekee. No particulars gathered; now in ruins in a tangle of bushes.
- Kukii..... On hill of same name, at Kapoho, 67x120 ft., built by Umi of lava blocks, or slabs, well fitted. Now in ruins; portions of walls only remaining. Some of its stones were brought down by Kalakaua, in 1879, which went into the foundation walls of the palace.
- Oalalauo..... Kilauea-iki: on summit of precipice; temple of Pele, Kamakaakeakua its priest. In ruins in 1825.

DISTRICT OF HILO.

- Kapaieie..... Near Honokawailani, Waiakea, famed in the Hilo-Puna wars. In existence at time of Byron's visit in the "Blonde." Size and class uncertain. Its ruins still to be seen.
- Makaoku..... On the shore opposite Cocoanut Island, Hilo, of luakini class, connected with the noted Mo-kuola place of refuge; dimensions unknown, though it is said to have had a high pyramid of stone as if for a place of observation. The stones of this heiau were taken by Capt. Spencer in the sixties for a boat landing.
- Ohele..... Site above the old Pitman store, at Waiakea; a small heiau of luakini class, about 60 ft. square; destroyed before Pitman's time.
- Kaipalaoa..... Near armory site, Hilo: of pookanaka class; the heiau at which Umi's life was threatened, and the place where Kamehameha I is said to have proclaimed his "Mamalahoa" law. Destroyed in the time of Kuakini's governorship of Hawaii.
- Kanowa, or Kanca..... Puueo, site of L. Severance's house; of medium size, about 80x60 ft., consecrated by Kalani-opuu to his war god; Luupule its priest. Its walls were thrown down prior to 1853, and entirely destroyed for roads in 1898.
- Kahinihiniula..... Punahoa, a small heiau of ipu olono class, long since destroyed.
- Kiniakua..... Near Waikapu Spring; a small heiau of hooulu ai class, now entirely destroyed.
- Papio..... Piihonua, back in the forest; a heiau for canoe builders and bird catchers.
- Onomea, a good sized heiau, about 100 ft. square, class unknown; long ago in ruins, now in cane field above the road.

- Napule.....Pepeekeo, a large heiau of traditional menehune construction, located on the Hilo side of Makahanaloa hills, above present cane fields: cf pookanaka class.
- Kamao.....Laupahoehoe, nothing now remains.
- Papaulekii.....Laupahoehoe, site of present court house.
- Lonopuha.....Laupahoehoe, site near present light house.
- Moiapuhi.....Kiilau, old Laupahoehoe mill site; destroyed in 1876 when the mill was built.
- Mamala.....Haakoa, on a bluff above Laupahoehoe village; a walled heiau 160x130 ft., class unknown; used for years past as a slaughtering pen.
- Waipunalei. At this heiau Umi sacrificed Paiea whom he had caused to be slain on coming to power, about 1490.

DISTRICT OF HAMAKUA.

- Manini.....At Koholalele; a large heiau consecrated by Liloa after reconstruction about 1460, on which occasion Laeanui was the officiating high priest and twenty-four victims were sacrificed on its altar. Kaoleioku was its priest in the time of Umi.
- Ka Loa.....Honokaa, a heiau of about 100x70 ft. in ruins and overgrown; wider at west end, with a wide platform feature along its makai side.
- Wawaemakilo.....Honokaa, near bluff: nothing now remains.
- Kalelemauli.....Kukuihaele; site found, nothing remains.
- Pukiohuaka.....Kukuihaele; site found, nothing remains.
- Kaiponihua.....At Ke-a, between Kukuihaele and Kapulena; not identified.
- Punanamoa.....Waikoekoe; not identified.
- Hauola.....At a place of same name, not identified; said to have been an ancient puuhonua.
- Pakaalana.....Waipio valley; built before the time of Kiha (1415). The famous place of refuge of windward Hawaii; destroyed by the King of Kauai about 1790. A heiau of most sacred kapus; Lono was its deity. (See Tales from the Temples.)
- Moaula.....Waipio; repaired and consecrated by Kalaniopuu about 1770, and dedicated to his war god after proclaiming Kiwalao as his heir, and assigning to Kamehameha the care of the priesthood and his war god Kaili.
- Honuaula.....Waipio, the place of sacrifice of Hakau and companions by Umi. Nothing of these Waipio heiaus remain, nor has any mention of their size been met with.

- Hokuwelowelo.....Waipio; remains of alleged small heiau, site of a trig. station. One of this name is claimed for Kukuihaele, nothing of which remains.
- Helehiwa.....Waimanu valley; an alleged heiau; not identified.
- Kaapeape.....Waimanu; a medium sized platform heiau on Waipio side of the valley. Houses now occupy its site.
- Mokini.....Waimanu; not identified.

DISTRICT OF KOHALA.

- Uli.....Waimea; size and class unknown; dedicated by Hakau; rebuilt by Kamehameha, its images and steps repaired. Coconuts for its consecration were brought from Puako, 12 miles distant. A low mound only remains to indicate its site, opposite the church premises.
- Puومانea.....Honokane, an alleged heiau and puukaua of small size.
- Hoolonopahu.....Pololu valley, a small heiau of time prior to Kamehameha, near east side, not far from the shore. All destroyed.
- Kuupalaha.....Makapala; a walled heiau 135 ft. on one side and end by 127 and 112 ft. on the others, its walls now four ft. high and from six to ten ft. thick: class unknown.
- Kapalama.....Halawa, near the sea cliffs; a platform heiau about 240x260 ft., the whole area well paved with small stones. Class unknown.
- Hale-o-Kaili.....At Hapuu, Halawa; a small heiau of platform character, 80x60 ft. Said by Ellis to be the family heiau of Kamehameha I, but of strict kapus and pookanaka class.
- Ohau.....At Halelua, a small heiau about 45x50 ft. in size; its walls 12 to 14 ft. high, some 14 ft. thick at the base and six at the top. Supposed to have been of luakini class. Demolished in 1902.
- Muleiula.....Halelua, eastward of present Light House; a small heiau said to have been built by King Hua, of Maui, in one of his raids, and later appears in list of several consecrated by Lono. Destroyed early in the sixties.
- Palapalahoomau.....At Naohaku, in the bottom of the ravine below the Kohala mill pumping station: now in ruins, indicating a size of about 26x56 ft. overgrown with lantana; class unknown.
- 'ahauna.....Lamaloloa. Known only from tradition: not identified.

- Mookini.....At Puuepa, a large heiau of pookanaka class, of 250 ft. in length on east side and 130 ft. wide at north end; of heavy substantial walls, credited as the second temple erected by Paoa. (See Tales from the Temples.) Its walls are yet in fair condition, but its internal divisions were doubtless changed in the fifties when the area was devoted to tobacco culture.
- Puukohola.....Kawaihae, a large heiau of pookanaka class 224x100 ft. in size, walled on the ends and mauka side; its seaward side open and terraced: Consecrated by Lono about 1580; rebuilt by Kamehameha I, about 1791, and dedicated to his war god Kaili, and the place of sacrifice of Keoua.
- Mailekini.....Kawaihae, situate a short distance below Puukohola, 270x65 ft. in size; class unknown. Its front is a low perpendicular wall; the mauka one much heavier and sloping. Internal features all gone; the interior now occupied by graves.

KONA HEIAUS.

- Ahuena.....Kailua. This was an ancient heiau of, or prior to the time of Liloa, 150x120 ft. in size, and the first one to have been repaired by Kamehameha I; changed to a fort by Govr. Kuakini about 1820. Time of its entire demolition not learned. It stood near site of present light house.
- Hiiaka.....Kailua. Particulars not ascertained. Its site is now occupied by a saloon.
- Keikipuipui.....At Keopu 3, near old palace; 100x80 ft. in size, of pookanaka class, built likely in the time of Umi; repaired by Kalaniopuu during his war with Kahekili. Holoae its priest. Demolished to furnish stones to build the first church on Hawaii.
- Haleoku.....At Auhauea 2; not identified.
- Kalopau.....At Puua 1; but little remains of this heiau; no facts learned.
- Mao.....Waiaha; a small heiau, now in a tumbled down condition, the road—which has cut into it—runs along its mauka side. The inner division shows a series of holes in its platform, said to have been where rain was cooked.
- Kauaikahaola.....Puapua 1; an early heiau, rebuilt by Kamehameha; about 170x75 ft. in size, of two divisions. Its walls yet in fair condition; entry way on seaward side.
- Halehau.....Holualoa 1; a walled structure 85x50 ft., its interior having two levels, the higher (two ft.) being paved along its upper side and south

- end: the latter entering by a passage to a division ten ft. wide.
- Hikapaia..... Holualoa 3, a large heiau of very irregular form 190x130 ft. in size, with six divisions, the two main ones paved; other portions given over to cultivation. Walls in fair condition.
- Haulelani..... Holualoa 4; (probably the Pakiha of Ellis) some 225x195 ft. in size, its outer walls being high and solid and still in fair order. No particular inside feature remains, being given over to cultivation. (See Tales of the Temples.)
- Kanekaheilani..... Holualoa; a heiau of two divisions, 135x80 ft., at a point on the sea shore. Entrance at east end; the inner division having a pond of brackish water credited by Ellis as the sacred bathing pool of Kamehameha. This heiau is now known as Keolonahihi: its walls are of ordinary height and in fair condition.
- Haleaama..... Holualoa; but a fragment remains; 85 ft. in length.
- Haleokekupa..... Holualoa; located, but not identified as a heiau.
..... Pahoehoe; a reported large heiau, not found.
- Haukalua..... Laaloa, a heiau of 100x75 ft., little of which now remains.
- Kalaemano..... Laaloa, located as a present house lot.
- Keawemua..... Kapalaalaea, an alleged heiau, portions of its foundation walls only remain. Said to have been the residence of Konia (Mrs. Paki).
- Lahae..... Kahaluu; small portion only remains; about 60x40 ft. in size.
- Kuemanu..... Kahaluu; a prominent place by the road, on which opinion differs as to the claim of being the site of a heiau.
- Haleokane..... Kahaluu; (supposed to be the Halekumukalani of ancient time), an oblong heiau of three divisions; size 185x65 ft. heavily overgrown; an enclosure 20x25 is a feature of the upper division with entrance from the central one. Heavy mauka end wall.
- Halelaau..... Kahaluu, a medium sized heiau about 100x60 ft. of two levels, in fair condition.
- Kapuanoni..... Kahaluu; located; little now remaining.
- Hanakalawai..... Kahaluu, nothing left of this heiau.
- Hapaialii..... Kahaluu; a large heiau said to have been built by Kamehameha about 1782 after the battle of Mokuohai. Hewahewa its priest. Constructed of large stones part on pahoe hoe and part on sand. But one corner of it, close to the shore, remains.

- Kamaikeeku**.....Kahaluu, also credited to Kamehameha as its builder; of heavy, high walls, and large size.
(Now known as Keeku) Its ruins now measure 170x130 ft., the northern end some 40 ft. wide being of platform character. Except indications of four house plats along the eastern side all its internal divisions have been removed. A lone tall Hawaiian palm, and many coconut trees, are growing within its walls.
- Paoumi**.....Kahaluu, of about 100x85 ft. in size: its once heavy walls being now in a badly tumbled down state.
- Makole-a**.....Kahaluu, a medium sized heiau, 97x60 ft., of Lonoikamakahiki's consecration, still in fair condition: its outer walls thick, five ft. high, and a low inner wall running lengthwise forms it into two divisions.
- Kaioena**.....Probably same as formerly called Keahiolo, at the boundary of Kahaluu and Keauhou. Little remains to indicate its size, or character.
- Opukaha**.....Keauhou; not yet identified.
- Kamauai**.....Keauhou, an alleged ancient heiau (whose site is now a house lot), ascribed to Kane himself and connected, traditionally, with the introduction and propagation of vegetables in these islands.
- Ohiamukumuku**.....Kahaluu. Traditionally said to have been built by the gods, 150x120 ft. in size. Repaired by Kalaniopuu, at which time Holoae was its priest. It was lastly repaired by Kamehameha. Nothing now remains of it; its stones went into church structures.
- Hookuku**.....Keauhou 2: an alleged heiau but probably only a famous sacred locality; the birth place of Kauikeaouli (Kamehameha III).
- Kualanui**.....Honalo, a heiau 145x65 ft. with platform feature at its southern end. Walls in fair condition.
- Mailii**.....Maihi 1; 120x145 ft. in size; its walls in fair condition, but all internal divisions gone.
- Kekuakalani**.....Maihi 2, (thought to be identical with Kaluaokalani). Its site only remains; now used as a place for drying fish nets.
- Lonohelemoa**.....Kuamoo 1: a T-shaped platform heiau, about 45x45 ft. with several internal divisions of various heights. No particulars obtainable.
- Puoa**.....Kawanui 1; a small heiau, in fair condition.
- Ukanipo**.....Lehuula: a small heiau 45x60 ft., of high thick walls, a low platform 20x30 ft. running along its rear wall; entrance at center of west side.
- Pahukapu**.....Hokukano 1. Site found; nothing of it remains.
- Hoopalahuli**.....Hokukano 1: a platform heiau 135x45 ft. in its

- widest part; a section at each end being smaller.
- Hopupalali..... Kaawaloa; a heiau of luakini class, 80x60 ft. in size; traces of which only now remain.
- Waaomalama..... Kaawaloa, north of "Puhinaolono," the sacred place where Cook's body was said to have been burned; probably not a regular heiau.
- Hikiau..... Kalama, Kealakekua, a truncated pyramidal heiau of very ancient time, 190x105 ft. in size, its front or seaward wall built up some 15 ft.; well paved; of two divisions. Noted as the temple where Capt. Cook participated in its ceremonies with Koa, the high priest. Its walls are fallen, and its area for years past has been residence property.
- Helehelekalani..... Situate not far from the above; said to be the temple where Opukahaia was being trained for the priesthood by Lepeamoa his uncle. A small insignificant platform heiau 25x35 ft. in size, now in ruins.
- Kamaiko..... Keel 2; a platform heiau 200x120 ft. in size, the south and makai end gone; the upper part in fair order, showing two or three inner divisions.
- Kaaia or Kaieie..... Keel 2, some distance inland of the above; about 150x50 ft. in size, now in a crumbled condition in a tangle of lantana.
- Alealea..... Honaunau, the prominent heiau in the famous city of refuge, a solid mass of stones ten ft. high, 128x64 ft. in size. The walls of the enclosure runs 715x404 ft.; are 15 ft. thick and stand 12 ft. high.
- Akahipapa..... Is a small heiau in the same refuge enclosure, termed "Heiau no na Wahine" (women's heiau), 24x28 ft. No other such has been met with throughout the islands.
- Hahapo..... Kealia, a walled heiau 100x60 ft. a low platform 6 ft. wide running along one end: walls good; traces of paving.
- Koa..... Waiea, claimed to be a heiau, 30 ft. square; a small platform in good condition.
- Hekilinui..... Kalahiki, a large heiau of four terraces, built before the time of Keawe. Traces of it only now to be seen.
- Kahauwawaka..... Kalahiki, above the road; built in Keawe's time, 150x120 ft. in size. Kamohoalii its priest. Portions of its walls only now remain.

DISTRICT OF KAU.

- Kaneikaupoku..... Manoka; not identified.
- Malino..... Kahuku near Pakini; not identified.
- Kalalea..... Kalae; the famous fishermen's Kuula of South Point, 45x35 ft. in size.

- Milolele.....Near South Point, 115x50 ft. in size; now in ruins.
Kiolakaa, an alleged heiau with walls somewhat diamond shaped, 65x75 ft. in size, two platforms being in opposite corners.
- Malulani.....Kiolakaa, 130x55 ft.; wholly destroyed.
- Alainamoana.....Waiohinu, a built-up platform heiau, five to eight ft. from the ground; one corner broken down.
- Panee.....Waiohinu; a platform heiau; nothing now remains.
- Papamoana.....Waiohinu; site located. Nothing remains.
- Kalamakoi.....Waiohinu; a low platform heiau somewhat L shaped; its lines still distinct.
- Paokua.....Kahea, an alleged heiau of small size, part walled and part platform, quite dilapidated.
- Pueo or Poopueo.....Kahilipali; not found.
- Makamakaole.....Kalainakekua. No trace remains; now in cane.
- Kamalai.....Honuapo; the heiau of Ellis' mention as dedicated to Kaili; destroyed in 1819.
- Kohaikalani.....Makanao, Hilea; 160x80 ft. in size with well built walls of five to six feet high; one corner fallen. Its interior divisions have been removed to permit cultivation. Of pookanaka class; Kahoapuaku, its priest.
- Imakakaloa.....Near Makanao, of complicated plan showing three divisions, one 75x50, divided in two, the other 70x105 ft. in which was the entrance on the mauka side: said to have been devoted to the hula.
- Pakini.....Kamaoa, a war heiau built by Kalaniopuu and dedicated to Kukailimoku and the place of sacrifice of the Puna Chief Imakakaloa by Kamehameha: not identified.
- Keeku.....Kaioa, a heiau 190x100 ft. in size, of several divisions built 400 years ago, one platform 30x40 outside its mauka end, and one 30 ft. square on its west side. Its western wall is gone but the others are in fair order; within are three platform divisions. A low wall encloses the whole, entered from the mauka end.
- Mokini.....Ninole; not identified.
- Lanipao.....Punaluu: an alleged heiau of medium size, traces of three terraces at its west end: walls in fair order: internal divisions gone.
- Punaluunui, Halelau....Punaluu, one 6 ft. wall running 687 ft. mauka, with a shorter one 240 ft. at the lower end is all that remains covering the area said to have been occupied by these two heiaus.
- Kaneeleele.....Punaluu, an important ancient heiau, said to have had affiliation in its workings with that of Wahaula, in Puna.



ALEALEA HEIAU IN PLACE OF REFUGE, HONAUNAU.

TALES FROM THE TEMPLES.

PART II.

Continued from last issue of the HAWAIIAN ANNUAL, and embracing the Heiaus of the Island of Hawaii.

BY THOS. G. THRUM.

Heiaus of Puna.

NATURALLY in the study of the heiaus (temples) of the principal island of the group, Hawaii, one is led to the famous, original structure of Paa, the high priest from "Kahiki," (believed in this case to be Samoa), who erected the same and substituted his system of heathen rites and ceremonies in these islands for what may have existed previous, and established his line of priesthood in Puna; the first heiau of his construction being that of Wahaula, at Pulama, close to the seashore bluffs; now largely hidden in a grove of hala, wiliwili and coconut trees.

Fornander, on the authority of Kamakau, states: that "in the original enclosure of the heiau of Wahaula was a sacred grove, said to contain one or more specimens of every tree growing on the Hawaiian group, a number of which, or their descendants, had survived when he visited the place in 1869."¹ He further

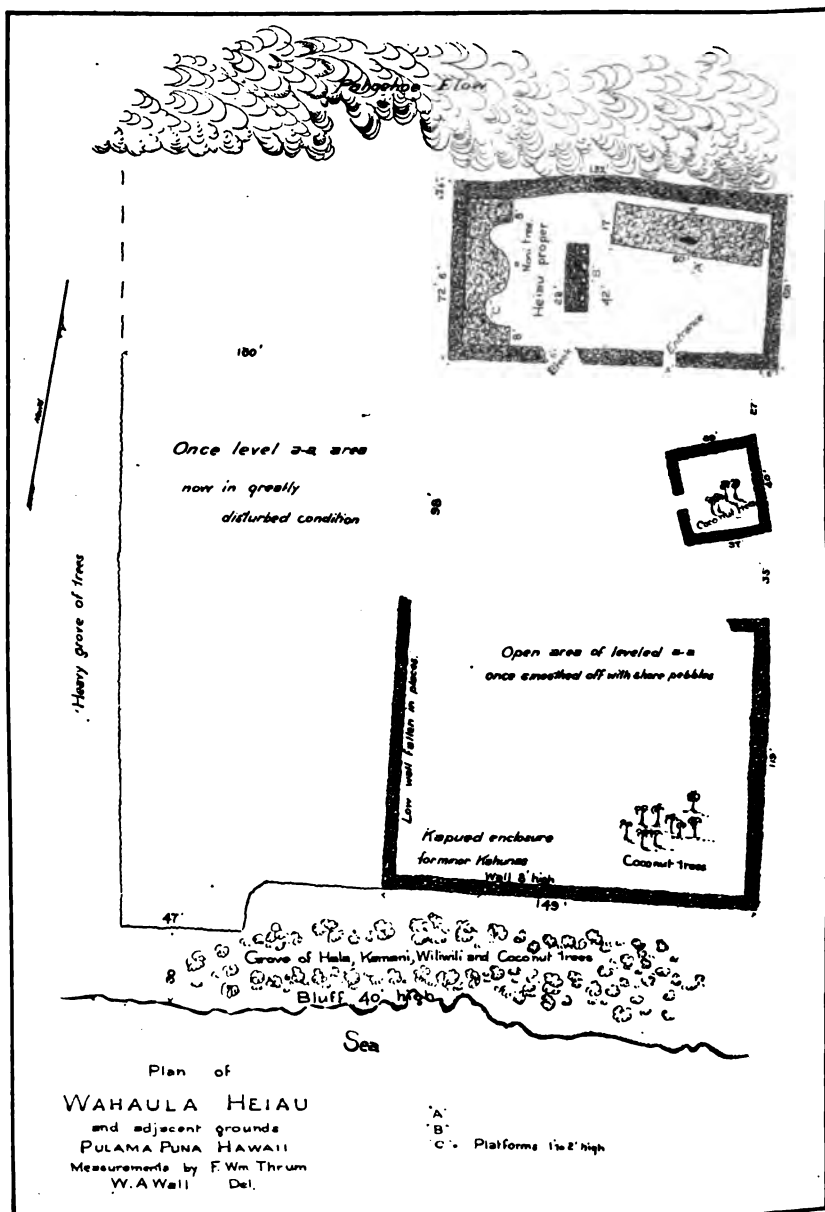
¹ Pol. Race, London, 1880, Vol. II, p. 36.

says: "It was built in the quadrangular or parallelogram form which characterized all the heiaus built under and after the religious regime introduced by Paoa."

Tradition credits a rebuilding of this temple to Imaikalani, a famous chief of Puna, and Kau, in the time of Keawenui-a-umi, in the sixteenth century. It was repaired again in the time of Kalaniopuu, about 1770, and in the time of Kamehameha I, it had its final renovation. Ellis, in his tour of Hawaii, in 1823, states it was built by him,² but this is an error. It is not known at which of these reconstruction, or repair, periods the reduction from its original size took place, either in the temple itself or its enclosure. Its present area would not embrace the grove of trees above indicated, and a description of the heiau and its approaches as given by a visitor some forty years ago, with information from an old man, son of its high priest and who himself had been brought up within its precincts to the age of 16, mentions a change. The account is as follows, corrected as to existing measurements as per plan shown herewith: "The Heiau of Wahaula is built on an 'aa' flow, and the ascent to it is by terraces. Upon the first terrace the female members of the royal family brought their offerings which were taken by the priests. Beyond this first terrace no female was allowed to pass. Two more terraces brings one to the enclosure or temple, in the shape of a quadrangle 132 feet long, by 72 feet wide. A stone wall encloses the temple, 6 feet high and 4 feet wide. The main entrance faces the East, flanked on either side by two smaller entrances. Immediately in front of this entrance stand the remains of the old temple, which was destroyed by the 'aa' flow on which the present one stands.

"Across the southern end extends a stone platform some 3 feet high built in the shape of two semi-circles connected by a straight platform. Between these semi-circles was placed the presiding deity, and on either hand were placed the offerings of fruits, etc., while immediately in front, on a small raised platform were placed the human sacrifices, which were always slain in the main entrance

² Tour of Hawaii, 3rd London edn., 1827, p. 265.



to the heiau. Immediately in front of this altar for human sacrifices, and extending across the enclosure, stood the priests' house, sacred to them alone. In the rear of this was the royal house, where the members of the royal family assembled during the days devoted to the sacrifices. The rest of the enclosure was paved."³

From a recent visit to this noted structure we are able to confirm much of the foregoing description, except the "two smaller entrances" mentioned. The main walls of the heiau, are still intact, excepting one break in the front wall midway between the entrance and the southeast corner (as shown on the plan), and a portion of the northern wall which is crumbling on the inside. There has been much disturbance of the more important divisions



SACRIFICIAL STONE IN WAHAULA HEIAU.

portion, where stood the house of the priests, has been broken across in an unsuccessful attempt to remove it. The walls of Wahaula are built of blocks of "aa" (or clinker lava) of the vicinity, while the divisions within, and its paving, are of the solid lava stones from elsewhere and leveled off with shore pebbles.

This use of shore pebbles is also to be seen in many parts of the area outside the temple walls, where the once leveled "aa" formed

³ Hawaiian, July 15, 1872.

its terraces and court yard. Its condition is now one of "hills and hollows," due to attempts at potato culture.

Little data new was gathered relative to its history in our visit, except the claim by a number of old natives, both through Puna, and in Hilo, that this heiau of rigid kapus and most cruel of human sacrifices had also a puuhonua, or place of refuge, in connection with it, where those having broken kapu, or in times of war, might flee to from their pursuers and escape all penalty. Opinion differed, however, as to its location, some maintaining a place called Haleokii, about a mile distant from the heiau, on the adjoining land of Kahaualea was the puuhonua of the district, while others held that the leveled area outside the walls to the southwest was the mecca. Not far distant was the location of the hale pea, or women's purification house.

Ten or more priests it is said were required in the services of this temple, and an idea of its severity may be had from the custom, as told by a grandson of one Makalaau, a *Mu*, or professional seeker of victims for its altars, that these, failing to be obtained at the time required, some of the priests were offered up. He said it was the custom of these "professionals" to go out generally in parties of three, at night, and listen outside the houses of the people for any breach of kapu, when they would rush in and seize their victim and lead or drive him to his doom.

Fornander states that it was the very last heiau that was destroyed after the tabus were abrogated by Kamehameha II in 1820.⁴

Kamakau in his account of the building of this heiau by Paoa⁵ gives its name as Ahaula, signifying sacred prayer of red (or high) order and lists it as such later,⁶ but if so we do not find when it changed. None of the people of the district were aware of this as its ancient name, and it appears to be little known, though a tradition was met with to the effect that it was originally named Halaula, from the trees of the red hala (*Pandanus*) which abounded in its vicinity, but that on the split into two factions of the Kahuna clan for supremacy therein, the defeated

⁴ Pol. Race, p. 35.

⁵ Kuokoa, Jan. 5, 1867.

⁶ Au Okoa, March 10, 1869.

party, in derision, termed them "Wahaulaula" (red mouth), from the painted red mouths of its idols, and the nick-name "Wahaula" has clung to it ever since.

The heiau of Wahaula had such sacred eminence that the smoke arising from its altars of sacrifice carried rigid tabu on land, or sea, according to the direction of the wind. In its sweep over the land it was death to anyone to pass under its shadow, nor could any canoe go out upon the water in its vicinity while the wind carried the smoke seaward, under less penalty.

Two versions of a tradition touching the prestige of this noted heiau is current on Hawaii, one of which, summarized, is as follows:

A lad from the adjoining district of Kau, in his journeyings through Puna, was caught at Puuloa and sacrificed by the priests of Wahaula and his bones thrown into the "lua iwi" (bone pit), a cavity at the shore known as Holoinaiwi, washed at times by the sea, into which the bones of human sacrifices were thrown. Upon his death, his spirit returned to Kau and narrated to his father the particulars attending his capture and sacrifice upon the altar of Wahaula, and that if he would come to Kahaualea, he could rescue his bones from the "lua iwi" into which they had been ignominiously thrown.

The father hastily set forth to secure the bones of his son that they might be properly concealed and safe from desecration as furnishing fish hooks or spear heads. At the boundary of the districts he was met by an olohe (professional wrestler), who waylaid travelers for their destruction, and a serious contest was entered upon. The father was of heavy build, and with his above average strength he proved a match for the olohe of beardless face, close cropped head and oiled body, lest a foe should obtain an opportunity for advantage in the "lua." As they fought together they backed against a high bank or precipice, the face of which cracked open by the force of their bodies thrown against it. The father quickly pushed the wrestler within the aperture which closed on him and held him fast, which crack is to be seen to this day, whereupon he proceeded on his

journey for the bones of his sacrificed son, at the "lua iwi" of Wahaula.

Watching for a favorable opportunity between the inwashing waves he recognized and rescued the bones of his boy, which he carefully wrapped and conveyed back to his own district and home, and placed them where they would be safe from molestation by personal, or tribal enemy.

At our visit to the scene we were shown the small cove, deep down the jagged bluffs of Puna's coast line, at the southern end of Wahaula premises, where the bones of the slain were washed, and to this day is known as Holoinaiwi.

Some two miles from Wahaula, toward Kalapana, is the ruins of the heiau Punaluu, near a good sized spring of same name, which is said to be affected by the tide, and the scene of one of those alleged shark-man depredations so familiar to all Hawaiians. Its walls of heavy lava slabs had been well constructed after the Umi type of alleged hewn stone, but which appear to be simply selected slabs of the surface lava rock of the district, which may be readily broken straight. It measured 37 by 119 feet and was greatly damaged by the earthquake of 1868. The walls remaining are from three to five feet thick and stand from four to eight feet high, according to the slope of the land. The south end is a built-up platform 17 feet thick and stands three feet above the main floor, well leveled off with shore pebbles, a constructive feature found in no other. The paved floor of this heiau was in greatly disturbed condition, and it seemed strange that its walls of well fitted, heavy stone, should succumb to the earthquake shock while the lighter, clinker walls of Wahaula should be comparatively unaffected.

In central Kalapana, back in a coconut grove intermingled with breadfruit, kukui, hala and mango trees and guava is situated the ruins of the heiau of Niukukahi, so thickly overgrown with jungle as to render it impossible to discover its features, whether it was a part walled and part platform heiau, as it seemed in places, or whether it was the remains of an originally enclosed structure. We were unable to make measurements, as desired, though from a native source it is placed as about 150

feet square. Kapihe was its chief priest, a celebrity in his day, and mentioned by Ellis as "the priest, who in the days of Kamehameha, told the king, that after death he and all his ancestors would live again on Hawaii. Kapihe had many disciples who believed, or pretended to believe, his predictions."⁷

The celebrated heiau of Kukii, on the top of a hill of the same name, in Kapoho, Puna, built by Umi, of alleged "hewn" blocks of lava, so closely fitted together that—to use an Hawaiian's expression—"a spear of grass could not be inserted between," has little left to confirm such a story of ancient Hawaiian masonry. It has long been in ruins, and gradually its flat stones have been removed for various purposes. Kalakaua, on one visit, brought some down with him to put into the foundation of the palace in 1879. Later, two were sent down to grace the veranda steps of Kapiolani's residence, and the Lymans' place, at Kapoho, has some doing like service. Its foundation remains indicate a heiau of about 67 by 120 feet, but of what thickness or height of wall we could not determine. On one of the stones of its northwest corner was clearly cut the form of a bird, nesting. Other carved stones had been reported, but nothing further was found but what might have been the effect of weathering.

At the base of this hill of Kukii, on the eastern side, is the famous warm springs of Kapoho, a body of remarkably clear water affected by volcano and tide, of a depth of fifteen feet and hence, a most delightful bathing place.

Heiaus of Hilo.

Of the heiaus of the district of Hilo little evidence of their existence now remains, so complete has been their destruction, but though their stones are scattered, much of their history is yet preserved.

Probably the most prominent temple in this section was that of Kanoa, (or Kanowa as formerly known), that used to exist at Puueo, near the site of L. Severence's present residence. The time of its erection is not stated, but Kalaniopuu consecrated it

⁷ Tour of Hawaii, p. 267.

to the service of his war-god, Kaili, when he set out to subdue the rebel chief Imakakaloa,⁸ in Puna. This indicates it as a war heiau of the pookanaka class, though it was but of medium size, some 60x80 feet. Luupule is said to have been its priest, and Kane and Kanaloa its deities, in latter years. Its walls were thrown down prior to 1850, and entirely destroyed and its stones taken for road work in 1898.

It figures also as the threatened place of sacrifice of Umi and his three companions, in the early part of his reign, while residing incog in Hilo, for some slight to the daughter of the alii of the district, but from which predicament they were released through his retinue, at Waipio, proving good his claim.

Kaipalaoa, a heiau that stood near the foot of Waianuenue street, Hilo, about the site of the present armory, is claimed to have been the place where Keoua sacrificed Keawemauhili, Moi of the Hilo district, whom he had defeated about 1790, and the one from which Kamehameha I proclaimed his Mamalahoa law. The destruction of Kaipalaoa dates back to the period when Kua-kini was governor of Hawaii, probably when Kaahumanu issued her edict, in Hilo, for the collection and burning of the idols.

In the premises formerly owned by Kipi, on Waianuenue street, is a large boulder known as Pinao, which is said by old natives to have been the stone on which Keawemauhili was sacrificed. It was formerly a part of the heiau of Kaipalaoa, and was being taken for the building of the first Haili church, but for some reason was left in its present locality.

Occasional reference is made to Coconut Island (Mokuola) as the place of refuge of the Hilo district, hence its name, life island. Careful enquiry shows that the area of this puuhonua included also a portion of the mainland adjoining. The heiau connected with it, named Makaoku, was of the luakini class. Its dimensions are unknown, though it is said to have had a pyramid of stone some thirty feet high, as if for a place of observation. Remaining stones of this heiau were taken by Capt. Thos. Spencer for a boat landing, about 1860. The northern

⁸ Pol. Race, p. 201.

part of Mokuola is known as Kaulainaiwi, being the place where the bones were placed to dry, or for airing.

At Waipunalei, near Laupahoehoe, was a heiau, the name of which remains doubtful, though famed as being the one where Umi, on coming to power, caused a petty chief named Paiea to be sacrificed, to avenge an alleged insult a short time previous. Kaoleioku was its priest at the time, the one who befriended and aided Umi in the overthrow and capture of Hakau, who ruled after the death of Liloa, their father.

Heiaus of Hamakua.

Relative to the Heiaus of the district of Hamakua little is gathered beyond the historic records which centers around those of Waipio, more particularly that of Pakaalana. Fornander says, "it is not known by whom this heiau of Pakaalana was built, but it existed before the time of Kiha, grandfather of Umi, and its tabus were the most sacred on Hawaii, and remained so until its destruction and the spoilation of all the royal associations in the valley of Waipio by Kaeokulani, King of Kauai, and confederate of Kahekili, King of Maui, in their war upon Kamehameha in 1791.⁹

Lono was the god of this temple in the time of Kiha, and here Ika, chief of a bandit clan, with his companions, were slain by Kiha and sacrificed upon its altar.

Ellis¹⁰ quotes a tradition of this locality to the effect that in the days of Umi, that king, after having been victorious in battle over those of the several divisions of Hawaii, while sacrificing captives at this place, the voice of his god "Kuahilo" was heard from the clouds requiring more men. This was repeated till he had slain all his attendants, over eighty victims in number, and but the priest and himself alone remained.

Pakaalana was the puuhonua or place of refuge for all this part of the island; a large enclosure, though not so extensive as that of Honaunau. Within its area was a small house called Ke Hale o Liloa.

⁹ Pol. Race, p. 73.

¹⁰ Tour of Hawaii, p. 365.

The heiau of Moaula, also in Waipio valley, was repaired and consecrated by Kalaniopuu and dedicated after his proclamation of Kiwalao as his heir and successor to the government, while to Kamehameha was assigned the care of the priesthood and his war-god Kaili.

Ellis states there were several heiaus in the Waipio valley, but the only other one mentioned in the records is that of Honuaula, which figures in Kamakau's history of Umi, where, after his (Umi's) successful encounter with Hakau, his half-brother and successor of Liloa, Hakau, with his vanquished attendants were offered up in sacrifice upon its altar. In tradition it is said that when Hakau and his companions were placed in sacrifice upon the altar of Honuaula, amid thunder and lightning the tongue of God appeared out of the heaven, without bodily form being visible, which caused the altar to tremble and the burnt sacrifices to be quickly consumed.¹¹

Another Hamakua heiau to figure in history was that of Manini, at Koholalele, which was consecrated by Liloa after reconstruction in the fifteenth century. Laeanui was the high priest of Liloa, and at the dedicatory services on the above occasion he recited the "kuawili," or long prayer of consecration when twenty-four victims were laid upon its altar.¹² Manini came under the jurisdiction of the high priest Kaoleioku when Umi came into power.

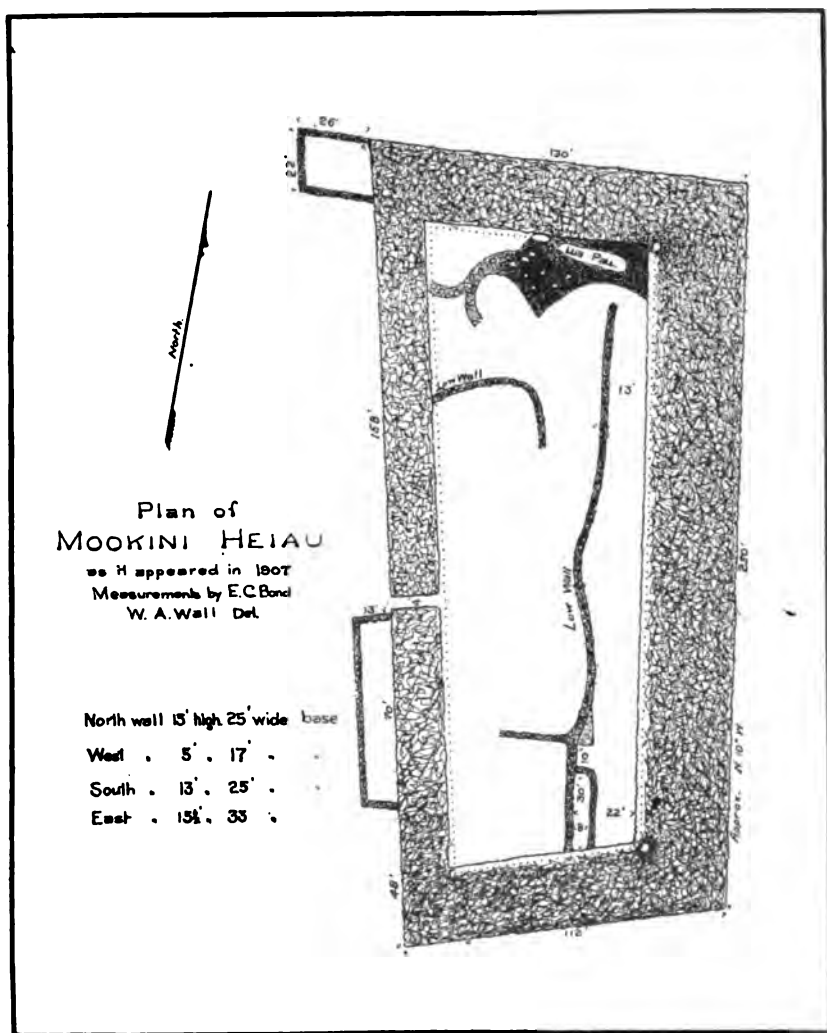
Heiaus of Kohala.

Continuing to the district of Kohala we come to a region that has retained much of interest relative to its heiaus, historic and otherwise, and of the present day information gathered thereon the ANNUAL is largely indebted to Mr. E. C. Bond, resident of the district. Here, close to the northern point of the island, on the land of Puuepa, stand the ruins of the heiau of Mookini, credited by Kamakau,¹³ and Fornander, as the second temple built by the high priest Paa upon Hawaii, and where he officiated.

¹¹ Au Okoa, Nov. 24, 1870.

¹² Legends and Myths of Hawaii, p. 265.

¹³ Kuokoa, Jan. 5, 1867.



It was probably one of the largest on the island, an irregular parallelogram in form, with walls even now measuring 267 feet on the west wall, 250 feet on the east wall, the north end being 135 feet and the south end 112 feet wide. The height of its walls have been over 20 feet, with a width on top of eight feet and 30 feet at their base.

The stones of which it is built are said to have come from Pololu valley, some ten miles distant, which, according to tradition were passed by hand from man to man the entire distance, a feat requiring at least 15,000 men. Fornander (in 1879), says, "when I visited the place ten years ago, the walls of the heiau were unimpaired, * * * and I was shown a secret well or crypt in the south side of the walls, east of the main entrance, several feet deep, but now filled up with stones and boulders like those composing the wall, which on removal revealed two maika stones of a fine white grain of extraordinary size, said to have been brought by Paoa from foreign lands,¹⁴ from 900 to 1000 years before the time of Kamehameha. Many points of interest in its vicinity are associated with Paoa.

It is difficult at times to reconcile current reports and belief with recorded traditions, and it is a coincidence that this apparent confliction applies to the two most famous heiaus of the district, that of Mookini, and Puukohola, at Kawaihae. It is evident, as has been mentioned by some writer that the credit of original construction is often overshadowed by the prominence given to the period or party concerned in its restoration. As illustrative of this and for details of the heiau of Mookini not found elsewhere, we quote from an account¹⁵ given by Rev. E. Bond, in 1885, the then resident missionary of the district, and the same popular beliefs were current during our residence there in the latter part of the sixties:

"My first visit to the heiau (of Mookini) was made in 1841. * * * The population in the vicinity was then somewhat numerous. From an old man who claimed to have been a priest in the establishment I learned much of the internal arrangement

¹⁴ Pol. Race, p. 37.

¹⁵ Saturday Press, April 25, 1885.

of the enclosure, the deposit for the bones of sacrifices not consumed, and that the dedication of the heiau took place when he was a young man; that ten human victims were moreover offered at the dedicatory service. These statements were fully corroborated by old people in the vicinity and in other parts of the district, many of whom declared themselves to have been eye witnesses of the ceremony. The stones of the enclosure, they assured me, were brought from Pololu valley; the people having been gathered by the chiefs from various parts of the islands, stood in line from Pololu to Puuepa and passed the stones from hand to hand.

"With these statements, so far as known uncontroverted, I had settled down in the conviction that the Puuepa heiau was not a very ancient structure. It is, however, quite possible that it may have been begun long years in the past, and also that but a part of the stones were taken from Pololu valley. * * *

"In 1843 I made a thorough examination, taking measurements, etc. * * * On the northeast corner, outside, is the large flat stone on which the victims were holeholed when taken from the lele, which stood at the right hand of the entrance."

A cave is said to have run from the sea to the heiau, and the lua-pa'u in the northeastern corner of the platform was connected with it.

From Mr. E. C. Bond's reports covering his investigations of some months past we condense the following account of the minor heiaus of his district:

Puuomanea is a heiau and puukaua (battle hill), 18 to 24 feet long and about four feet high, originally built up with some regularity, situate on the ridge between Honokane-nui and Honokane-iki, near the eastern limits of North Kohala. It consists of a large heap of a-la (smooth or water worn) stones, which are said by an old native to have been carried up from the bottom of Honokane-nui for use as missiles in an anticipated battle against Umi, who was approaching by the mountain route from Kau and the Konas. To this cavalcade and this chief belonged that place called Ahu-a-umi, mauka (inland) of Hualalai. Believing this party in their march would descend into Honokane-

nui by way of Kohala these stones were collected on Puuomanewa, but instead, he came by way of Waimea, Ouli and Puu-opili, in Kawaihae-uka, to attack them in the rear. This fact, with the great number of people in his army, caused the would-be defenders to flee incontinently, leaving their heap of stones unused, to remain to the present day.

Hoolonopahu, a small heiau, said to have been built long before Kamehameha's time, and located on the most prominent sand hill in Pololu valley, near its east side and connected therewith by a narrow ridge, distant some 300 feet from the beach; the entire beach across the mouth of the valley being composed of a fine dark sand that has been blown up by the wind into an irregular line of low hills.

The sound of a drum was continually heard during the nights of Ku, proceeding from the locality of this heiau, hence its name. But when search was made the following morning, no drummer could be found. Finally direction was given by the chiefs to search the premises and on failure to find the cause to demolish the heiau, which was done. All that now remains is an inconspicuous pile of stones but a foot or two above the sand. It would appear from this and from descriptions that have been given of other heiaus, that the minor ones sometimes consisted of nothing more than a stone cell of but small dimensions. Residents of the valley aver that the sound of the drum is occasionally heard, even now.

Kuapalaha. This heiau is in Makapala and occupies the top of a low hill that rises in the mouth of a ravine and faces the sea in a precipice 60 feet or more in height, westward of the Keokea landing, once used as a shipping point by the Niulii plantation. The hill is now so overgrown with brush that no close examination could be effected, but it was found to be crowned by a stone wall of from six to ten feet or more in thickness, and at the present time about four feet high, inclosing a leveled square space. Upon a subsequent visit its dimensions showed 127 feet on the north or sea side, 135 feet each on the west and south sides, and 112 feet on the east side. Whether a smaller enclosure abutting this one lower down the slope on its mauka side, and toward its

southeast corner, constituted a part of the same structure, I would not venture to say on so partial an inspection, but took it to be of more recent date for a more ordinary purpose.

Moving westward to Halawa, a few feet below the railroad and some 500 feet from the sea cliffs, is situated the platform heiau of Kapalama, on the upland east of Kapanāia landing; a road through the cane field passing along its side. So far as is known this was never more than an immense stone pavement overlaid with pebbles; the only walls being the retaining walls built on the north and west sides for the purpose of leveling up the area. The remains of the west wall shows it to have been accurately aligned and well built. The sloping face of the seaward wall must have been as much as eight feet high. By pacing only, I found the area to be approximately 240x260 feet. This whole area was nicely paved with shore stones, and overlaid with loose pebbles from the same source. The question arises of what use could the ancient Hawaiians have made of this large open area called a heiau? The houses occupied grounds to the eastward, the marks of their location being yet distinguishable. About 80 feet from the southeast corner lies a large, irregular, stone about 18 inches thick which my guide with some hesitency showed me, saying, he had been informed that it was the stone on which human bodies had been cut up, but he could not vouch for it. There is no reason to doubt that it was the stone on which the flesh of victims had been stripped from the bones, similar to the one at Mookini.

A little further to the west, at Hapuu, also in Halawa, is the heiau of Hale-o-Kaili, at the landing once used by the Halawa plantation. Like the one just mentioned, this is said to have been only a stone pavement, starting about 40 feet from the edge of the sea cliff at a spot on the east side of the small bay, and running eastward 80 feet, with a width of 60 feet, paced measurement. It is said that when digging to place a chute to facilitate the handling of sugar in loading boats at the base of the cliff, an ancient storage cave of the chiefs, extending beneath the heiau, was opened by the natives, but immediately covered up and kept a secret.

Ellis in his tour through this district describes¹⁶ this Hale-o-Kaili as the family heiau of Kamehameha, of which Kaili was the god. It was an insignificant pile of stones. His guide said that its kapus were very strictly observed, and the punishments incurred by breaking them were invariably inflicted on the transgressor; and that Kamehameha always supposed his success in every enterprise, to be due to the strict attention to the requirements of his god. Many persons, said the guide, had been burnt in the adjoining hills for having broken the kapus enjoined by the priests of Kaili.

Moving again to the westward, about one-third of a mile into the next bay was located the site of the heiau of Ohau, reported as having been about 40 or 45x50 feet, its walls 12 to 14 feet in height, some 14 feet thick at the base and about six feet at the top. Until within five years this structure was in a good state of preservation, and the removal of so manifest a heiau, by E. E. Olding, for the sake of using the bit of ground it covered, for cane, may be considered a bit of greedy vandalism. This heiau stood on a low swell of ground near the mouth of a ravine, about 350 feet from the shore. The stones which comprised this structure may now be observed in a massive wall ten feet thick, about 140 feet long, and 12 to 14 feet high, built across the bottom of the ravine. It is said that during their removal numbers of human bones were unearthed, some of which were sacked and cast into the sea, and others re-interred.

On the adjoining land, Halelua, eastward of the lighthouse, is said to have been a small heiau whose walls were removed early in the sixties when the Kohala plantation was started. This was Muleiula, traditionally credited to Hua, the infamous king of Hana, Maui, when he raided Hawaii. [Fornander mentions that in Kauhi-a-kama's time this heiau of Muleiula belonged to a chief name Kamakaohua,¹⁷ and it appears again in a list of several as consecrated by Lonoikamakahiki¹⁸ in his tour of the island.—Ed.]

The most familiar of all heiaus of the islands is the famous one

¹⁶ Tour of Hawaii, p. 290.

¹⁷ Pol. Race, p. 276.

¹⁸ Pol. Race, p. 122.

at Kawaihea, named Puukohola, from its being on the travel route of so large a portion of residents and visitors, and figures prominently in history in connection with Kamehameha's supremacy. It is generally referred to as the last heathen temple erected, but on this point there are evidences otherwise.



HEIAU OF PUUKOHOLA, KAWAIIHAE.

The earliest descriptive account given of this celebrated heiau is that of Ellis from his visit in 1823, at which time it was doubtless in perfect order, being then only 30 years since its completion by Kamehameha, and but four since its disuse. We quote therefrom as follows:¹⁹

“Puukohola stands on an eminence in the southern part of the district, and was built by Kamehameha I, about 1793, (Alexander says 1791), when he was engaged in conquering Hawaii and the rest of the islands. He had subdued Maui, Lanai and Molokai, and was preparing—from the latter—to invade Oahu, but in consequence of a rebellion in the south and east parts of

¹⁹ *Tour of Hawaii*, pp. 81-83.

Hawaii, was obliged to return thither. When he had overcome those who had rebelled he finished the heiau, dedicated it to Kaili, his god of war, and then proceeded to the conquest of Oahu.

"Its shape is an irregular parallelogram, 224 feet long and 100 wide. The walls, though built of loose stones, were solid and compact. At both ends and on the side next the mountains, they were twenty feet high, twelve feet thick at the bottom, but narrowed in gradually towards the top where a course of smooth stones, six feet wide, formed a pleasant walk. The seaward wall was not more than seven or eight feet high, and proportionately wide. The entrance to the temple was by a narrow passage between two high walls. * * * The upper terrace within the area was spacious, and better finished than the lower ones. It was paved with flat, smooth stones, brought from a considerable distance. At the south end was a kind of inner court, which might be called the sanctum sanctorum of the temple, where the principal idol used to stand, surrounded by a number of inferior deities."

Jarves states that "eleven men were immolated on its altar on the day it was completed, and great quantities of fruit, hogs and dogs presented."

From Fornander and native accounts we gather the following historic mention of this heiau:

"A revolt occurred on Hawaii which had its strength in Kohala during Lonoikamakahiki's visit to Kakuhihewa's court at Oahu, which hastened his return, and landing at Kealakekua where he began gathering his forces and securing the aid of Pu-pukea and troops, from Kau, they met and routed the rebels in two battles, near Wainanalii and at Kaunooa. Reinforced from Kohala and Hamakua the rebels gave two other engagements, at Puupa and Puukohala, near the heiau of that name, in both of which Lono was victorious, and Kanaloakapulehu, one of the four revolting brothers, was taken prisoner, slain, and sacrificed at the heiau.²⁰

²⁰ Pol. Race, p. 121.

"Puukohola is one of several named heiaus consecrated by Lono, as acknowledgment to the gods for his victories after he had restored peace and order."²¹

This indicates that the heiau of Puukohola was in existence in the time of Lonoikamakahiki (1565-95), yet Kamehameha is credited with its construction in the following events of his reign:

"At the time of his (Kamehameha's) sending Kikane on a mission to Kahekili, King of Maui, Molokai and Oahu, to arrange for a place of landing and field of battle, he sent Haalou, (grandmother of Kaahumanu), also to confer with Kapoukahi, Kauai's renowned prophet, to obtain his opinion as to the best way to secure his (Kamehameha's) supremacy. In reply Haalou was instructed to tell Kamehameha to build a large heiau for his god at Puukohola, adjoining the old heiau of Mailekini, near Kawaihae; that done he would have supremacy over Hawaii without more loss of life."²²



SEAWARD TERRACED WALLS OF PUUKOHOLA.

²¹ Pol. Race, p. 122.

²² Pol. Race, p. 240.

"During several years of struggle with Keoua, the great heiau on Puukohola was in course of construction, but he had been unable to subdue him, so, acting on the Kauai soothsayer's advice the construction of the heiau was resumed with a vigor and zeal quickened, perhaps, by a conscience of neglected duty, with all the people and chiefs from Kona, Kohala and Hamakua to assist at its building."²³

Kamakau says:²⁴ "In the building of Puukohola no high chief was exempt from carrying stones for it, except Keliimaikai, who, seeing Kamehameha engaged in this labor also seized a stone and shouldering it set out for Puukohola. Kamehameha observing this remonstrated, and taking it from him said: 'you be the one to observe the kapu,' then he directed that the stone be taken and cast into the sea."

"When the heiau was completed, but not consecrated, Keaweheulu and Kamanawa, two ministers of Kamehameha, set out to induce Keoua Kuahuula, Moi of the eastern division of Hawaii, then in Kau, to visit Kamehameha, on the pretext of amicably terminating the war differences that had so long existed between them. After some hesitency, and against the wishes of his advisers, he consented, and set forth in well manned double canoes for Kawaihae, touching at various points en route. As he neared his destination and witnessed the preparations for his reception he felt misgivings as to the true intent, and remarked to Kamehameha's emissaries accompanying him 'that the clouds forebode trouble. Rearranging his forces and taking into his own canoe with him those designated as 'moepuu' (companions in death), twenty-seven in number, he continued on till nearing the shore at Mailekini, where he was surrounded by Keeaumoku, Kamanawa and others. Keoua standing up and addressing Kamehameha, says, 'Here am I,' to which Kamehameha replied: 'Stand forth, that we may see each other.' As Keoua stood, with the intent of leaping ashore, Keeaumoku threw a spear at him, which he dodged but caught, when it became an object of contest between them till at last Keoua and many others of his com-

²³ Pol. Race, p. 328.

²⁴ Kuokoa, May 4, 1867.

panions were killed, and his body was taken and offered up in sacrifice upon the altar of Puukohola."²⁵

Of Mailekini heiau little of its history is learned, or what connection, if any, it had in its working with Puukohola within two hundred feet above it. In early days it was said that traces of an underground passage existed, though it was difficult to tell whether or not the two temples were connected by it. Mailekini is longer and narrower than its neighbor above, being 250x85 feet, but like it is open on the sea side.

A tradition is current that this was the one that Kamehameha set out to rebuild that he might be successful in war, but on the advice of Kapoukahi he transferred his labors to the upper one of Puukohola, as has been shown.

Heiaus of Kona.

Of the heiaus of Kona, too few particulars are gleaned to satisfy the enquirer, either from the historic or traditional standpoint, considering their number and the importance many of them held in this once numerous populated district.

The heiau of Ahuena, at Kailua, described by early visitors as "of truncated form," would indicate it as of great antiquity. It is said to have been 150x120 feet, and is the first mentioned in the list of those put in repair by Kamehameha in his tour of the island for such service and the replenishing of images, but it was changed to a fortress at the close of his reign. Ellis, in 1823, refers to it as follows:²⁶ "Adjacent to the governor's house stand the ruins of Ahuena, an ancient heiau, where the war god was often kept and human sacrifices offered. Since the abolition of idolatry in 1819 the governor has converted it into a fort, widening the stone wall next the sea and placing upon it a number of cannon. Three idols are still upon the walls, one at each end and one in the center, one of which stood sixteen feet above the wall, was upwards of three feet in breadth, carved out of a single tree." Vancouver on his visit to Kailua, in 1794,²⁷ de-

²⁵ Kuokoa, May 11, 1867.

²⁶ Tour of Hawaii, p. 436.

²⁷ Vancouver's Voyage, London, 1801, Vol. V, p. 103.

scribes the heiau in the neighborhood of Kamehameha's royal residence as "the most complete structure of the kind and kept in the greatest order and repair of any that had fallen under his observation, decorated with several statues or idols carved out of the trunks of trees and meant to imitate the human form, but of the most gigantic and preposterous figures."

Keikipuipui was the Kailua heiau of Kamehameha, according to Kamakau, and while of but 100x80 feet in size, its pæhumu, or surrounding fence, contained forty images.²⁸ Its erection is credited to Liloa, and is listed among those repaired by Kalanio-puu at the time of his war against Kahekili, of Maui, hence of pookanaka class. Holoae was its priest at that time.²⁹ This heiau was demolished to furnish stones for the first church on Hawaii.

Kauaikahaola, situate at Puapuaa 1, was another heiau of early construction that had its last repairs at the hands of Kamehameha. Ellis describes³⁰ this "as 150x70 feet in size, built of immense blocks of lava. At the north end was a smaller enclosure sixty feet long by ten wide, partitioned off by a high wall with but one narrow entrance. The places where the idols stood were apparent, but these had been removed. The spot where the altar had been erected could be distinctly traced, a mound of earth, paved with smooth stones and curbed around. Four principal idols were worshipped at this temple, one of stone, two of wood, and one covered with red feathers, named Kanenuiakea, Kaneluluhonua, Lolamakaeha and Kekuaaimanu."

Pakiha, at Kaluaokalani, near Holualoa, was a large heiau of some prominence in its time and dating back, Ellis informs us, to Queen Keakealani, in the sixteenth century. At his visit "it was in good state of preservation; the walls solid, thick, and nearly entire; with stones piled upon the top in a singular manner like so many small spires which gave it an unusually interesting appearance. Its dimensions were 270x210 feet."³¹ In Mr. Stokes' recent heiau search through the district nothing was

²⁸ Kuokoa, Aug. 24, 1867.

²⁹ Pol. Race, p. 152.

³⁰ Tour of Hawaii, p. 101.

learned of Pakiha, though one now known as Haulani, in Holualoa 4, from its size and condition indicated it as probably the same. Its exterior walls are high, solid, and in fair order, but the internal features have been eliminated to allow cultivation within its area.

Kanekahealani (now known as Keolonahihi), at a point on the sea shore at Holualoa 4, is a heiau of two divisions, 135x80 feet over all; its walls of ordinary height are still in fair condition, the west end wall being curved. Its inner (western) division contains a clear pool of brackish water, which is said by the natives to have been the favorite bathing pool of Kamehameha, which no other person was allowed to use.

Ohiamukumuku, situate at Kahaluu, one of the early heiaus of the district (traditionally said to have been built by the gods, not by the people), was another of those put in order by Kalanipuu and dedicated to Kaili, under the charge of Holoae, his high priest, to maintain its service and accomplish the defeat and death of Kahekili.³²

It also figures in the earlier wars with Maui, and became the place of sacrifice of Kamalalawalu and his general, whose raid of Kona in the time of Lonoikamakahiki met with ignominious defeat. Tradition couples with this event the death also of two celebrated dogs which the Maui king brought over with him as mascots, a white one named Kauakahiokaoka, and a blind black one named Kapapako, which, on the death of their royal master, are said to have lain down beside its walls and died, and they were there buried.

Nothing of this heiau now remains, its stones having gone into church structures of the neighborhood.

Makole-a, a smaller heiau, not far distant, is like the foregoing, beyond the traditional record for the time of its construction, though it appears in a list of several consecrated by Lono. Its remains are yet in fair condition, measuring 97x60 feet; the walls being thick and five feet high. A low wall runs lengthwise, forming two internal divisions.

³¹ Tour of Hawaii, p. 102.

³² Pol. Race, p. 152.

At this heiau a rebel chief named Kapulani was condemned to death by Lono, and ordered to be sacrificed the next morning, but during the night he was set at liberty by Lono's niece and made his escape into Kau and was not further molested.³³ It is said that after Kamalalawalu was slain at the heiau of Ohiamukumuku his body was burned on the altar of Makole-a, but instead of his bones remaining in Kona, they were subsequently conveyed to Maui in the time of Kaahumanu.

Keeku, also in Kahaluu, is credited to Kamehameha as its builder. It was of heavy construction, and built up quite high. Its condition is yet fair in parts, and measures 170x130 feet, its northern end being nearly forty feet wide, which may have been its platform. All its interior divisions have been removed, save indications of four house plats along its eastern side. A lone Hawaiian palm, very tall, and many coconut trees are growing within its area.

Little now remains of Kapuanoni, a large heiau of Kahaluu, described as an ancient puuhonua and luakini, built in the time of Lono. Tradition has it that when Malaihi was its kahu (or keeper), a native fled to it from Pahoehe and was followed in by his pursuers, seized, and taken away without remonstrance, which violation coming to the ears of the king he had the keeper slain and sacrificed on the altar of Ohiamukumuku.

Hapaialii, was another Kahaluu heiau, of large dimensions, reported as 300x170 feet in size, and credited for its construction to Kamehameha after the battle of Mokuohai, about the same time as Keeku. It was built near the shore partly on pahoehe and partly on the sand. The character of its stones indicate it as belonging more likely to the earlier period of Umi. A corner of heavy stones yet remain in fair condition close to the shore; the rest having fallen away and in parts entirely gone.

Kamauai, a heiau of Keauhou, whose site is said now to be a house lot, was one of pre-historic times, ascribed to Kane himself, the great god of Hawaii, and of large size. Tradition connects the first introduction of vegetables into these islands with this

³³ Pol. Race, p. 122.

heiau, where it says: "When the canoe with its strange products reached Keauhou some of the people lifted up the vegetables and asked Kupu-a-huluena (a famous kupua who had traveled in foreign lands) their names, he gave them successively, then directed that they be offered upon the altar of Kamaui, whereupon, after due ceremony, they were distributed and planted out, and have been successfully propagated from that time."

Hikiau, the famous temple of Kealakekua, where Captain Cook participated in its ceremonies with Koa, its high priest, is said to have been of the ancient truncated pyramidal form that prevailed before the southern migratory period.³⁴ Captain King, who accompanied and participated with Cook in the temple service, gives a descriptive account of this heiau and furnishes also a detail of ceremonies nowhere else met with, from which we make the following extracts:³⁵

"It was a square, solid pile of stones, about forty yards long, twenty broad and fourteen in height. The top was flat and well paved, and surrounded by a wooded rail, on which were fixed the skulls of the captives sacrificed on the death of their chiefs. In the center of the area stood a ruinous old building of wood, connected with the rail on each side by a stone wall, which divided the whole space into two parts. On the upper side were five poles, upward of twenty feet high, supporting an irregular kind of scaffold; on the opposite, sea side, stood two small houses with a covered communication.

"We were conducted by Koa to the top of this pile by an easy ascent, leading from the beach to the northwest corner of the area. At the entrance we saw two large wooden images, with features violently distorted, and a long piece of carved wood of a conical form inverted, rising from the top of their heads; the rest was without form, and wrapped round with red cloth. We were here met by a tall young man with a long beard, who presented Captain Cook to the images, and after chanting a kind of hymn, in which he was joined by Koa, they led us to that end

³⁴ Pol. Race, p. 174.

³⁵ Cook's Voyages, London, 1784, Vol. III, pp. 6-9.

of the heiau where the five poles were fixed. At the foot of them were twelve images ranged in a semicircular form, and before the middle figure stood a high stand or table on which lay a putrid hog, and under it pieces of sugar-cane, coconuts, bread-fruit, plantains, and sweet potatoes. Koa having placed the Captain under the stand, took down the hog and held it toward him; and after addressing him a second time in a long speech he let it fall on the ground, and led him to the scaffolding, which they began to climb together, not without great risk of falling. At this time we saw coming in solemn procession, at the entrance of the heiau, ten men carrying a live hog and a large piece of red cloth. Advancing a few paces they stopped and prostrated themselves; and Kaireekēea (Kailikia?), the young man above mentioned, went to them, and receiving the cloth carried it to Koa, who wrapped it round the Captain, and afterwards offered him the hog, with the same ceremony.

"Whilst Captain Cook was aloft in this awkward situation, swathed round with a red cloth, and with difficulty keeping his hold amongst the pieces of rotten scaffolding, the priests began their office, chanting sometimes in concert and sometimes alternately. This lasted a considerable time; at length Koa let the hog drop, when he and the Captain descended together. He then led him to the images before mentioned, and having said something to each in a sneering tone, snapping his fingers at them as he passed, he brought him to that in the center, which, from its being covered with red cloth, appeared to be in greater estimation than the rest. Before this figure he prostrated himself and kissed it, desiring Captain Cook to do the same, who suffered himself to be directed by Koa throughout the whole of this ceremony.

"We were now led back to the other division of the heiau, where there was a space ten or twelve feet square, sunk about three feet below the level of the area. Into this we descended, and Captain Cook was seated between two wooden idols, Koa supporting one of his arms, whilst I was desired to support the other. At this time arrived a second procession of natives,

an irregular parallelogram, walled up on one side and at both ends, the other being formed by the sea beach, except on the northwest end, where there was a low fence. We found it to be 715 feet in length and 404 feet wide; its walls twelve feet high and fifteen thick. Holes were visible in the top of the wall where large images had formerly stood, about four rods apart, throughout its whole extent. Within this enclosure were three heiaus, two of which were considerably demolished, while the other was nearly entire, a compact pile of stones laid up in a solid mass, 126 feet by 65 feet, and ten feet high. Many fragments of rock, or pieces of lava, of two or more tons each, were seen in several parts of the wall, raised at least six feet from the ground. We could not learn how long it had been standing, but were informed it was built for Keawe, who reigned in Hawaii about 250 years ago."



"KAAHUMANU" STONE, LOWER TEMPLE, CITY OF REFUGE.

It may not be generally known that this puuhonua of Honaunau has been restored within the past few years at the expense of Mr. S. M. Damon, including two of the three heiaus that be-

longed to the enclosure. Alealea, as described above, and Aka-hipa, a small structure near the mauka wall, termed the women's heiau. This work of restoration was done under the supervision of W. A. Wall, surveyor, to whom the ANNUAL is indebted for the accompanying plan of the enclosure.



"KEOUA" STONE, LOWER TEMPLE, CITY OF REFUGE.

Adjoining it was the noted Hale o Keawe, the royal tomb, erected by Kanuha, a son of Keawe II, about the year 1690,⁸⁷ built of kauila timber. This was removed about 1829 by order of Kaahumanu, the remains of the kings and chiefs being brought to Honolulu for interment and its timbers formed the hale kauila that stood between the old fort and the court house.

Heiaus of Kau.

Of Kau's heiaus little is gathered. Historically, Pakini figures prominently, having been built by Kalaniopuu and dedicated to his war god during the time of his war with Imakakaloa,

⁸⁷ Alexander's Brief Hist., p. 46.

chief of Puna, in expectation of his capture, which, being accomplished, was made his place of sacrifice.³⁸ The performance of the ceremonies on this occasion devolved upon Kiwalao, but while presenting the offerings of hogs, fruits, etc., preparatory to the human sacrifice, Kamehameha seized the slain body and placed it upon the altar and dismissed the assembly.³⁹

Recent enquiry in the district fails to identify it though the records place it as on the land of Kamaoa.

Kohaikalani, at Makanao, Hilea, is the ruins of a well built heiau, 160x80 feet in size, one corner having fallen away. Its walls are five to six feet high; internal divisions removed to permit cultivation, hence probably their being kept in repair. This is said to have been of luakini class, of which Kahoapuaku, a relative of Keoua, was its priest.

An important heiau of Punaʻūu, said to have had affiliations with Wahaula, in Puna, was Kaneelele, of which nothing but portions of foundation walls can now be discerned.

It is hoped to complete this series of historic research papers in the next ANNUAL, to embrace the temples of Maui and Molokai, thus covering the entire group.

³⁸ Kuokoa, Feb. 16, 1867.

³⁹ Pol. Race, p. 202.

HISTORIC MISSION HOUSE.—The first framed house of the first missionaries to these islands that was erected at Kawaiahao, on King street, and the first framed structure in this city—has been rescued from the ravages of insects and time, having been thoroughly renovated and placed in fac simile of the original structure so far as possible. An account of this house was given in the ANNUAL for 1897, with a brief historic sketch of it as the home of several mission families in order of succession. For this last change it was bought by Mr. Chas. M. Cooke, and turned over to the Mission Children's Society to be used as a repository of relics of early mission days and the archives of the Society.

A NOBLE INAUGURAL ADDRESS.

THAT the Governor's mantle has fallen on capable shoulders is readily conceded by all classes throughout the Territory, and is shown clearly in the inaugural address of Hon. W. F. Frear, at the resignation of Governor George R. Carter from the cares of State, on August 15th last.

Space is here given for its entirety rather than a summary thereof, for it will be as valuable for reference as it was inspiring at its delivery. Hawaii's century of political history is ably covered in the brief retrospective sketch given, as the ground of faith for the people of these islands to labor together for that larger prosperity our beneficent climate, productive soil and commanding position entitles them; and is, throughout, an encouragement toward a continued harmonious development of the varied possible industries already in progress.

"Lord Bolingbroke, in his essay on the study and use of history, quoted from an ancient Greek, that 'history is philosophy teaching by examples.' One of the best philosophies which history thus teaches is that of faith in the future. This it does not alone by self-sacrificing deeds and brilliant achievements which excite admiration, but even more by aggregations or successions of events and conditions which disclose movements, relations and tendencies. He who looks solely to the immediate or the isolated risks finding cause for pessimism alone; he who takes a comprehensive view can scarcely avoid an uplift to heights of optimistic courage and endeavor. Weeds of bickering and greed and spite ever stand conspicuous in the foreground, but by raising our eyes and looking back along the avenue of time, we may behold the stately palms of purpose and progress; happy are we if thus inspired we may turn and catch, through the mist of uncertainty or even apparent gloom, a vision of the opening future.

"In no history is the philosophy of faith taught more clearly than in that of Hawaii. It is a great history in miniature. In

small compass and the short span of a century it exhibits the problems and their solutions that have made up in large part the histories of great nations of centuries' growth—problems religious, educational, hygienic, racial, social, political, industrial. For nearly a century Hawaii has been a sociological experiment station or laboratory. The problems have been those of the elevation of an aboriginal race from a state of pagan barbarism to one of Christian civilization and the realization of Anglo-Saxon ideals in a tropical environment. The solution has been, not by the slow process of self-evolution, nor by the forced imposition of foreign ideas, but by development through the peaceful yet rapid introduction of such ideas and their gradual but ready assimilation by the native race—the process of natural growth under artificially improved conditions. The three main general agencies of modern civilization, the church, the school and the printing press, were brought to Hawaii in 1820. The influences of the better classes of whites coupled with the receptiveness of the natives for higher things and the recognition by the wisest of their chiefs and common people of the necessity of keeping pace with swiftly changing conditions if they would continue numbered among the nations of the earth, produced results that cannot but excite marvel. The natives soon graduated from the field of missions, a Christian nation; they quickly became one of the least illiterate of peoples; they rapidly acquired high moral, social and political standards and have manifested increasing capacity for their attainment. There was swift transition from a state of feudalism to one of individual ownership of land; from a government of absolute despotism to one of limited constitutional monarchy and further, even before annexation, to one of advanced republican form. Industries were built up as circumstances required or permitted, until Hawaii attained first rank in point of high development of one of the world's greatest industries, and her inhabitants became one of the most prosperous of peoples. These achievements were due mainly to American influences; here, indeed, grew the only community of American spirit on foreign soil. So quiet were the workings of these influences that they permeated the native mind and heart with-

out violent shock; so powerful, that the two races soon found themselves akin in spirit and aim; so rapid, that Hawaii, though the much-coveted gem of the Pacific, was enabled to preserve her independence against designing nations until manifest destiny required her adoption by the Great Republic, and then so thoroughly imbued was she with American principles that she was received as one of the family, and not as a mere possession.

"Let us not be deceived into supposing that all this was merely fortuitous. The inspiration that comes from a study of Hawaiian history is not mere optimistic enthusiasm nor superstitious hope for future good luck based upon past fortune, but faith—faith that enables us to cry, with the poet, 'The future I may dare to face, now I have proved the past.' One cannot read that history intelligently and sympathetically without being impressed by the unfailing operation of the law of cause and effect. The Hebrew seer learned from history that 'Righteousness exalteth a nation; but sin is a reproach to any people.' The strong Kamehameha I went far toward discovering the same truth with the faint light that he had amidst the darkness of his own people and the godlessness of most of the whites with whom he came in contact. The magnanimous Kamehameha III realized it when on the restoration of independence he gave to his people their national motto. High purposes, adaptability to conditions, vigorous and united effort—these rather than favoring circumstances account for Hawaii's moral, political and industrial progress. Biologists emphasize the factor of inheritance and the slowness of the evolutionary process; geologists discourage with their æons of time; but Hawaii's sociological laboratory shows what man can do through earnest and thoughtful endeavor just as her geological laboratory shows what nature can do under special conditions of climatic and volcanic intensity.

"The same lesson of faith is taught by the story of effort and accomplishment under territorial government. Seven brief years, and yet what grand results, if we but pause to view them!—years, it is true, largely of adjustment to new conditions but equally years of advance. Natural feelings of sadness and even of bitterness over loss of independence—feelings not confined to

Hawaiians alone—have passed from the stage of outward manifestation and in large measure from existence; there is every reason for belief that the Hawaiians will soon have passed from a state of reconciliation to one of the same ardent loyalty and patriotism towards their adopted country that characterized their attitude toward their former country. The first legislature seemed to justify the contentions of those who opposed manhood suffrage; but how splendidly succeeding legislatures have proved the contrary! The entire body of Hawaiian statute law has been put in compact and harmonious form and added to by numerous other laws remedial and constructive. Government by the fictitious beneficent despot or even by a commission would be unsatisfactory, demoralizing and unworthy of a people at all capable of self-government; for the same reasons, government by limited suffrage cannot be justified where unrestricted suffrage is compatible with safety. While the Hawaiians, composing the majority of voters, have not, as a rule, exhibited strength in initiative or administrative qualities, they have displayed in a remarkable degree qualities more essential in an electorate,—amenability to reason and a disposition and capacity to make right choices. The chief executive office has been filled by men of rare singleness of purpose, breadth of view and courage of conviction; the high standards of aims and methods and results which they have established under special difficulties will be hard to maintain. It is true, the Territory must confess humiliation for a time through corruption and inefficiency on the part of several subordinate officials, but the lesson from this and from the promptness and vigor with which the condition was met has proved quite as valuable as that condition was painful. The judiciary also experienced turbulent times for awhile owing to the grave and difficult questions that arose out of the new conditions and the disposition of some to bring the courts into politics, but has long since been restored to the high status previously enjoyed for half a century. Local government has been established without the baneful results predicted—more expensive at present and perhaps in some respects less efficient than centralized government, but on the whole more satisfactory and

tion; as to those that do, failure to devise feasible methods of irrigation for small proprietors would mean stultification in view of the recent reclamation project of the west, the ancient complicated systems of Hawaiian water rights, and reputed American ingenuity and enterprise. The Planters' Experiment Station, the Federal Experiment Station, the Bureau of Agriculture and Forestry, the College of Agriculture and Mechanic Arts, the special employment of experts and scientists in many lines indicate a disposition to pursue appropriate methods for discovery of suitable crops and methods of cultivation and manufacture. The public schools must be directed by the same spirit of inventiveness and adaptability in order to meet requirements by instilling into rising generations respect for manual labor and interest as well as instruction in agricultural and mechanical pursuits. The factors are many; all must be made to contribute. The more detailed the consideration the more feasible appears the object, but in general it would seem strange if the spirit that is converting what was once called the 'Great American Desert' into what is coming to be called the 'Bread Basket of the World' cannot insure success in a land of such salubrity of climate, fertility of soil, favorableness of location and natural attractiveness as these islands possess.

"The policies of small landed proprietorships and diversified industries are not necessarily antagonistic to the prosperity of the sugar industry. There is no inherent reason for opposition to that industry; every reason for aiding it. Probably nowhere are business enterprises, large and small, conducted more generally under corporate forms, but probably nowhere are they conducted more honorably or with less abuse of capitalistic power. The sugar industry is the proverbial goose that lays the golden egg—from which directly or indirectly the Territory and her people derive their main support. To destroy or seriously cripple it would deprive us of what we have and render us impotent to get what we want. If it were still in its infancy it would call for most strenuous efforts to bring it to its present extent and state of efficiency. Our policy should be constructive, not destructive, nor even substitutional except as to methods. Indeed,

far from being in opposition, the campaigns for small landed proprietorships and the sugar interests should be, for best results to each, in closest conjunction. It is not too much to expect this. Those in control of the sugar plantations are among the most public spirited of our people or of any people; more than that, they need the small settler as much as he needs them. The land laws must, of course, be applied liberally for the promotion of settlement and strictly for the prevention of speculation or of absorption into large estates, but these very objects demand that the laws shall be applied with due regard to facts. It would be fatal to those objects to divide among small settlers, as leases to plantations expire, sugar lands which would inevitably soon pass to the plantations in fee,—whether because purchased for speculation or because impossible of successful cultivation on a small scale under specific conditions of irrigation, transportation, capital or other difficulties. Until such conditions change, such lands should be leased to the highest bidders, thus securing revenue to the Territory, aid to the plantations, and, above all, the retention of the lands for purposes of settlement when conditions warrant. The lands most suitable for homesteading, whether cane or other lands, should be the first to be utilized for that purpose. When circumstances permit or require, the utilization of other lands for the same purpose will doubtless be found consistent with the prosperity of the sugar industry. Meanwhile those in control of the sugar plantations are in duty bound from considerations both of the public welfare and of self-interest to offer every aid possible towards the homesteading of suitable neighboring lands. Thus will be guaranteed both success to the small proprietor by providing him a sure source of income through the sale of products or labor to the plantation, and the advantage to the plantation of a change from an evanescent supply of labor requiring constant expensive replenishment to a permanent, efficient and economical, because a self-propagating and attached, supply. Even before annexation the contract labor system had largely disappeared; long since, the purchase system, in one form or another possessing in some degree the principle of profit-sharing, has come into general

practice, with increased returns to both planter and laborer; more recently the planters have begun extensively to provide laborers with homes of sufficient size for resident and garden purposes; already a beginning has been made toward coöperation in various ways by the planters with the government in the establishment of homesteads of sufficient size to support families independently—in one noteworthy instance by the erection and operation of a central factory for canning pineapples raised by the homesteaders—the advantage to the plantation consisting in the certainty that a large proportion of the stronger members of the families will desire work on the plantation much of the time; it may yet, in the natural course of events, prove to be to the advantage of the sugar planters to have their operations confined to central factories, and their lands, whether now held under lease or in fee, subdivided and sold to settlers.

“‘The conclusion of the whole matter’ is that setting aside all meanness of spirit we should one and all proceed, with faith in the possibilities of high purposes, right methods and persistent and united effort, to the grand task of building up our fair Territory to the utmost in every possible way. Then will her political, social and industrial life be in harmony with the purity, beauty and grandeur of her azure skies, opal seas and richly variegated mountains and valleys.”

THAT Hawaii once held aspirations to coin money of and for her own realm is evidenced by the fact that estimates for a mint to coin a national currency were received here from London in the latter part of 1853, the expense of which was estimated not to exceed \$10,000, set up ready for use.

TRADITION credits the introduction of the bread-fruit tree in these islands to Kahai, a son of Moikeha, who brought a species from Upolu, in the Samoan group, on his return voyage from Kahiki, and planted same at Puuloa, Oahu.

CUSTOMS TABLE REVIEW, 1907.

THESE are readers of the ANNUAL to whom its Customs Tables are of that dry material as to be passed over with little if any consideration, yet who take a sufficient interest in the commercial progress of the Territory as to desire a knowledge of what it produces, and how much is realized from its exports. But to understand its status fully it is essential to learn what are our imports and their cost, or how much of our annual income is required to meet our obligations abroad in this business way. To all such, as to the statistical observer, the following analysis of the Tables of Export and Import, as shown on pages 22 to 26, will prove helpful to a clearer knowledge of the subject, and it is hoped to show that there are interesting and beneficial lessons to be learned therefrom.

Briefly, our total exports for the fiscal year ending June 30, 1907, was \$29,303,695, and the total imports for the same time was \$18,662,434, leaving a balance in our favor of \$10,641,261. This is less than the previous year's gain by \$713,689. Both exports and imports show increased figures, but while the latter realized \$2,308,871 over the exports of 1906, our importations increased more, the gain being \$3,022,560. Notwithstanding this growth in imports being larger than the growth of our exports, it is an improvement on the net result of the previous year, where the imports increased as usual, while the exports declined materially both in value and quantity. Two features brought out by the analysis show that the increased imports are largely for material benefits rather than harmful products as in 1906, and higher cost in several important lines rather than larger importations.

Of our main product, sugar, it is gratifying to note an improvement again in the annual output of raws, which, with the shade better prices obtained for the year, has realized \$26,860,002, a gain of \$3,019,199, the quantity exported being 804,249,041

pounds, or 91,688,044 more than in 1906, and making it, with refined, second in the annual list of sugar exports, both in quantity and value. In refined is noted a large falling off, which may be an indication of increased local demand for home consumption rather than a reduction of the refining plantation's output for the season. Molasses shows a slight advance, but with the closeness to which our sugar product is worked up nowadays, through efficient machinery and skill in the boiling-house, it is not likely to ever again appear to advantage among our exports.

Fruits again take second place in value of yearly exports, and while all kinds, grouped under the head of green (which comprise bananas, pineapples, and all other of our exportable tropical fruits), appears to have declined in value some \$16,035, canned pineapples has jumped from \$152,582 in 1906, to \$267,629 in 1907, and all other preserves has increased from \$2,521 in 1906 to \$10,441 the past year. Under this latter class is grouped preserved pineapples in glass, and the product of jams, jellies, chutney, etc., of local industry that is meeting with evident encouragement.

Coffee fell off nearly 50% in quantity the past year and with a shade lower in price there stands only \$128,875 for this product for 1907, as against \$248,593 the previous year. This is a larger decline than was last year's gain over that of 1905, and indicates it as having been coffee's off year.

Aviary products show also a decline, both honey and beexwax having fallen off materially, contrary to expectations and despite the commendable views of Dr. Wyle, the head of the pure food department at Washington, as to its quality. Possibly a larger local consumption may account for this.

Hides and skins, though but slightly increased in quantity of exports, show a gain of \$15,458 in value, the total for the year being \$141,883.

Wool shows an improvement both in quantity and value of exports for the year, being \$54,548 for 1907, as against \$45,883 for 1906.

Rice falls back again to a minor place in the list of domestic produce, the exports for 1907 being 3,324,107 lbs valued at \$147,-

439, as against 5,739,500 lbs. in 1906, valued at \$223,012. There is, however, to be noted an increase in the amount of foreign rice exported, thus relieving the local market somewhat for our own product, and this, too, has doubtless benefitted by the needed restrictions of fumigation on much of the imported article from Japan this past year.

Timber and unmanufactured lumber, under which head comes our new Koa lumbering industry, shows nearly \$13,000 benefit in exports for 1907. With the favorable report and encouraging orders for ohia railroad ties in hand and in prospect, in addition to the main business, marketing our koa, recognized as a furniture wood of the highest grade, the outlook is promising for the corporation's development of a business of magnitude, toward which its newly laid out railroad, penetrating the forest in the vicinity of the volcano, will make available a large tract of both koa and ohia timber.

Our fiber product shows a gain in the value of exports of \$5,348 for 1907 over that of 1906, and, as may be seen in an article on Sisal Industry in this issue, the outlook is encouraging for an increasing and profitable demand.

The foregoing covers practically the list of Hawaii's domestic produce and, though few in number, they are growing in importance and gradually increasing. A much larger list of articles figure in the table of exports that are termed domestic because of American product as distinct from foreign, but which are simply returned goods. The more prominent of these items are: Machinery, iron and steel, etc., \$98,145; carriages, autos and parts of, etc., \$19,688; books, etc., \$13,091, with a considerable list of minor importance.

In dealing with Importations our figures have to do principally with those from the mainland, for the want of detail tables of goods received from foreign countries, as has been remarked in previous issues, our source of information being the "Summary of Commerce and Finance of the United States," which fail to show such. Of the total value of imports for the year, amounting to \$18,662,434, all but \$4,151,709 represents the

amount of our purchases on the mainland, the latter sum being the amount of imports from all foreign countries.

As has already been shown the imports have increased more than did our exports, and stands now third in the annual list, 1901 and 1902 only exceeding it. (See table of Hawaii's Annual Trade Balance, page 28).

An analysis of the import list reveals some lessons of more than passing interest and, as has already been remarked, much of the increase is found to be in constructive or productive lines toward our development; and in not a few cases it is higher cost rather than increased quantity that is unfavorable to us. A comparative showing of the main items are as follows:

The total importations of iron and steel, and manufactures of, show an increase in value for the period under review of \$456,516. An examination of the several kinds under this head gives the following instructive figures:

Bar iron showed imports of 561,278 tons in 1906, valued at \$9,645. Last year we bought but 38,514 tons more, yet the value is placed at \$17,987. Bar steel imports in 1906, valued at \$9,645, increased to \$33,758 in 1907, the quantity for the past year having multiplied over five times. Sheet steel and plates show imports of 2,535,059 lbs. in 1907, at a value of \$86,495, an increase of \$21,414 over 1906. Structural iron and steel increased from \$33,899 in 1906, to \$41,885 the past year. Steel rails declined \$14,845 during same period. Machines, machinery and parts of, valued at \$601,147, is but \$30,500 over that of 1906. Wire jumped from \$12,208 value in 1906, to \$32,932 in 1907, the quantity imported this last year being 1,235,760 lbs.

Pipes and fittings show imports of 5,522,095 lbs., a little over twice the amount received in 1906, valued at \$211,390, favors us in price this past year. Stoves and parts of gains also nearly 50%, these items partaking of the extension of fuel gas in this city.

Brass and manufactures of show an increase in value of \$21,410, the imports for the year being \$45,776.

Bricks, for building, fell off 813 M. in quantity value in 1907, our needs apparently being c

cost of \$5,366. Lime also declined from 81,575 bbls., valued at \$81,590 in 1906, to 54,043 the past year, at a shade higher cost, being valued at \$59,203. Of cement we took 9,040 bbls: in 1907, or 593 less than the previous year, valued at \$15,881, a saving of \$6,252.

Builders' hardware in its several lines increased in value from \$106,763 in 1906, to \$170,348 in 1907.

Manufacture of fibre, under which head is our bag imports, these show an increase of \$5,925 over the previous year. Cordage, valued at \$103,491 for the 829,445 lbs. required is 337,473 lbs. more than was received in 1906.

Electrical appliances, etc., jumps from \$71,141 in 1906 to \$104,857 in 1907.

Manufactures of marble, as also varnish, more than doubles in value their importations of 1906.

Tin plates, etc., valued at \$29,072 in 1906, increased last year to \$74,074, while manufactures of tin increased \$23,544, nearly doubling its import value of 1906; the effect of our increasing canning industry.

Fertilizer, and nitrate imports show a slight increase in the former, but a falling off of 25% in quantity of the latter, at a total value of \$1,023,878, a reduction of \$36,313 as compared with 1906.

Paper and manufactures of, shows as follows: Paper hangings increased \$1,762, and playing cards gained \$994. Printing paper declined in value \$1,159, yet the amount imported was 217,793 lbs. greater. Writing and wrapping paper increased \$18,884 for 1907, and all other kinds also increased \$56,020 over the values for 1906.

Wood and manufactures of, in total, shows an increase in value for 1907 of \$121,786. Segregated as to kind the exhibit is as follows: Sawed timber, logs, and other, fell off in value \$48,819; boards, planks, etc., increased in value \$98,225, though we received 430 M. feet less than in 1906. Shingles also show a less quantity at a higher figure than in 1906. Box shooks, for the canning industry, at a value of \$33,246, more than doubles that of the previous year, and all other kinds show a gain of

\$25,995. Doors, sash and blinds, gain \$16,609; furniture gains \$11,022; moldings, trimmings, etc., fell off \$4,328, while all other increases \$4,594.

Window glass increased from \$6,690 in value in 1906, to \$12,578 in 1907, and all other gained \$10,127 over the previous year.

Under the class, Provisions, may be seen to what extent Hawaii is dependent upon others for even the common necessities of life.

Imports of meat and dairy produce continue to grow steadily. This division passed the half million mark several years ago, the value in 1907 being \$616,282. The principal item in the list is milk, quantity of which is not given, but valued at \$147,614. Next in importance is butter, of which we received 435,233 lbs., of the value of \$130,015. Beef products declined over 50% from that of 1906; mutton also fell off considerably, but hog products, and game, held their own.

Our requirement of eggs, of which we received 53,845 dozen, or 451 dozen less than in 1906, cost us \$14,943, or \$1,948 more than the supply of that year.

Fish, all products, increased in value from \$247,954 in 1906, to \$271,673 in 1907, the most notable being canned fish other than salmon and shell fish.

Vegetables increased in value from \$157,370 in 1906, to \$202,526 the past year. Of the few kinds enumerated beans and peas fell off \$5,030. Onions increased \$3,000. Canned vegetables increased \$15,149, and potatoes increased \$31,361 in value, though we received but 791 bushels more than in 1906, the receipts this past year being 90,235 bushels, valued at \$86,982; this, too, from a State that we used to supply the same article by the schooner load.

Rice from the mainland fell off considerably the past year, being but \$34,144 in value as against \$164,863 in 1906, when we received 4,129,643 lbs. Rice from Japan, we believe, has also suffered decline both in quantity and value, but the tables show no detail.

Salt evinces a slight gain in value of \$1,926, though for 26,916 lbs. less quantity than the previous year.

Starch, an article we should be producing for local consumption and export, as was done in the early sixties, cost us \$15,677 last year as against \$9,657 in 1906.

Fruit:—The value of receipts of dried and fresh, or green fruits, in 1906, was \$108,326, and \$135,760 in 1907; an increase of \$27,434. Of canned and other preserved, the value of imports was \$37,824, a gain of \$15,213. on that of the previous year, making a total increase of \$42,647. Of the above fresh fruits it is noted that oranges figure first in the list in value, and has done so for several years past, the yearly imports for 1905, 1906 and 1907, being \$45,379, \$41,034, and \$46,222, respectively, an amount which if devoted to encouraging our own choice product would materially assist the "small farmer" theory.

Hay tells against us heavily from its higher cost the past year. Our imports of 9,727 tons, valued at \$188,087, is but 479 tons more than was received in 1906, yet the difference in value over that year is \$55,964. Fortunately the result is not the same with our grain receipts, prices ranging lower, if anything, on all kinds, including flour, of which latter there was 106,715 bbls. imported, being 2,572 bbls. less than in 1906, at a total value of \$424,169.

Molasses and syrup shows a slight gain, while refined sugar nearly doubles that of 1906, which was 1,185,559 lbs., valued at \$58,644, as against 2,106,958 lbs., valued at \$93,969 in 1907. This doubtless has connection with our diminished export of this grade already mentioned.

Lines more of the luxury and comfort class make the following showing:

The value of automobiles and parts of, imported in 1906 was \$107,266. In 1907 we received 104 automobiles, valued at \$162,769, and parts of, to the value of \$8,224; a total of \$170,993. With all other kinds of cars, carriages, etc., the increase on each is general, to a total value of \$55,997.

Books and other printed matter showed \$58,037 for 1906. Last year the value of imports under this head was \$85,023; a gain of \$46,986.

Chemicals, drugs, etc., increased \$291,953 in value of imports

from the mainland, without considering the supply of this class from Japan, which is said to be steadily increasing.

Clocks and watches shows \$14,455 for 1906; this increased the past year to \$19,215. Jewelry, etc., for the same time fell off from \$83,665 to \$7,237. The value of our imports of this class of goods in 1905 was \$186,465. Plated ware also declined the past year \$8,270. Lamps, etc., other than electric, has jumped from \$16,131 in 1906 to \$39,059 in 1907.

Manufactures of cotton, in bleached, unbleached, printed, etc., gained \$439,576 over 1906, the imports that year being 4,069,559 yards, valued at \$304,833. In 1907 we imported 11,386,708 yards, valued at \$744,409. Wearing apparel, under this head, also gained \$248,271 over like imports of 1906. Silks advanced from \$39,539 in 1906 to \$54,744 this past year.

Boots and shoes have increased to 195,036 pairs in 1907, at a value of \$342,878, being \$156,264 over that of 1906. Sole and upper leathers show increased consumption and value to the amount of \$33,172, or nearly 40%. Saddles and harness gained nearly one-third, as did also all other leather manufactures.

Earthen, stone and chinaware increased from \$29,411 in 1906 to \$60,216 in 1907, a difference of \$30,805.

Metal furniture increased from \$6,546 in 1906, to \$11,852 in 1907.

Manufactures of rubber increased \$19,210 for the past year, this difference being in other than belting, hose, boots and shoes.

Gunpowder and other explosives show a falling off of \$14,525.

Oils:—Crude increased in quantity of import 11,289,700 gallons, yet a reduction in cost of \$297,058. All other kinds show an increase in value of imports, but a decline, in total, of \$237,486 for the year.

Soaps improve in value \$11,705 over 1906, but for a less quantity.

Tobacco, Etc.—Cigars show a gain in value of \$26,620 for 1907, and cigarettes a gain of \$38,982. Plug and other shows a decline of \$9,420.

Toys have increased nearly 40%; the import value in 1907

being \$26,489. Trunks, valises, etc., also increased the past year to \$28,704, as against \$15,575 in 1906.

Wool, manufactures of:—Dress goods do not show material change in value, but less in quantity. Carpets increased \$1,862; flannels and blankets \$15,860; wearing apparel, \$27,292, and all other \$23,490.

Malt liquors show an increase of \$29,625 in the value of imports for 1907, and distilled liquors also show a gain of \$3,219, while wines declined \$15,114 for the year.

Taken altogether the exhibit indicates a very satisfactory condition of the commerce of the Territory.

A LONG FLIGHT.



ON the departure of the U. S. Army transport *Crook* from Honolulu, with the Tenth Regiment, for Alaska, last June, a carrier pigeon was sent in care of an officer for release upon arrival at their destination. The bird returned to its quarters here on the morning of July 30th, 1907, bearing the following message:

"St. Michael, Alaska, July 16th. *Crook* arrived 10 a. m., all well on board."

A note was also appended signed by Capt. Hanson, of the S. S. *Helen*, showing that the winged messenger, tired by its long journey, had rested on his vessel July 24th. Unfortunately the location of the ship at the time was not given, whereby the correct distance of its eight days' flight could be ascertained. Upon its arrival home it did not appear unduly fatigued for the long passage of some six thousand miles, but seemed in perfect condition.

This will probably be found to be the record long distance flight of the homer pigeon, for an average of the whole passage allows 429 miles a day, which would show the bird to have traveled about 3,400 miles when it fell in with the *Helen* for a en route.

AN EARLY ASCENT OF MAUNA LOA.

Extract from "A. Menzies' M. S. Journal, in Vancouver's Voyage, 1790-1794."

BRITISH MUSEUM: MS. DEPARTMENT.

(This is said to be the first time this account appears in print.)

FEB, 24, 1793.—“Early on 24th the Observatory markee and a small tent, with the astronomical instruments, were sent on shore and erected close to the Morai (heiau), on the same spot where Captain Cook stood fourteen years before. The party, consisting of a guard of six marines, were under the command of Mr. Whidbey, who was to make the necessary observations for ascertaining the rates of the time-keepers which were also landed for that purpose.

In the morning the king came on board, with his queen and two of his ihannees (aikanes), and went on shore again in the forenoon with Captain Vancouver, Mr. Paget and myself, in the pinnace, but no other canoes came alongside either of the vessels till near noon. We landed in the pinnace close under the Morai, where, it seems, the shore was tabooed from women, in consequence of which the queen was obliged to take a canoe and land in another place. We first went to see the encampment, which was pitched in a small field adjacent to the Morai, and the king particularly requested that none of our people should go nearer the Morai than the walls of the field, which was particularly tabooed for our use, and Mr. Whidbey promised him that his injunctions should be strictly observed. As we passed from thence to the village we saw the cattle screening themselves from the heat of the sun under the shade of the cocoa-palms; we likewise saw the bull in a shady place, but he was so weak that he could not yet stand upon his legs, as they said; he could,

however, eat and drink pretty well; there were some hopes of his recovery from his appearance, tho not very flattering.

After this the king took us to his own house, which was pretty large, and the floor covered all over with mats on which we sat down and refreshed ourselves with cocoa nut liquor, while four marines that followed Captain Vancouver through the village, as a guard, were drawn up in a small court before the entrance, and at the king's particular request, went through their manual exercise, while he attentively eyed their various motions with great satisfaction. At the further end of the house we observed upwards of two dozen muskets which the king said he lately procured, in the way of traffic, from Mr. Brown, master of the ship "Buttersworth" of London, and added that they were so very bad that some of them burst on the first firing, on which account they were now afraid to fire any of them off.

On returning back to the tents we perceived that a considerable space of the shore near the Morai was tabooed for our convenience, where anything might be landed from the boats in safety, free from the teasing curiosity and pilfering disposition of the natives; and it is but justice to say that the king had hitherto taken every precaution to preserve peace and good understanding between us, by adopting every method that might prevent his people from giving offense, for on the day we came into the bay he requested that none of his people should be suffered to go on board the vessels, not even his chiefs, excepting those he desired; otherwise he could not be answerable for their conduct, which, I believe, was in a great measure complied with.

* * * *

"As I was particularly anxious to examine the interior parts of the country, in a journey up the mountains, it was this day mentioned to the king, who was no sooner made acquainted with my pursuits, than he readily consented, and as an encouragement to the undertaking he promised that he would send particular people along with me, to conduct and protect me, and to supply me, during the journey, with everything the country afforded. Under these circumstances I was under no apprehensions as to my own safety and therefore told him I should be

glad to set off the following morning and trusted he would make the necessary arrangements for that purpose.

On shore we met another Englishman named John Smith, who had been upon the island about three months; he landed from an American vessel that was going to the Northwest coast for furs, on account of ill usage. He had since mostly lived with the king, who made him a chief of the island and gave him a portion of land to support his dignity in that capacity. When this man understood that I was going a journey up the mountains, he eagerly offered to accompany me, and as he was likely to be better acquainted with the country and the inhabitants, I accepted of his offer, which the king approved of and entrusted him with the power of providing for the party wheresoever we went.

Next morning, the 25th, I left the ship pretty early, accompanied by one of the gentlemen, Mr. John Stewart, who was desirous of satisfying his curiosity in seeing the interior parts of the country. At the village of Kakooa we were joined by John Smith and a group of attendants loaded with necessaries for our intended excursion, such as cloth, and mats to sleep on at night, live pigs, fowls and dried fish, with other articles of provision, sufficient for a week's consumption, and as for vegetables or any other thing we should want, Smith had unlimited powers given him to supply us from any plantation we went through without even asking the owner's leave.

The forenoon was far spent in arranging and equipping the party before we left the village, and as our route lay directly back from it, over a dry, barren, rocky country, up a steep ascent in the scorching heat of the day, the first part of our journey was rather fatiguing, before we gained the summit of the eminence over the bay, where we met a refreshing breeze, and had an extensive prospect of the country and villages to the southward of us, the tract which extended along shore, if we might judge from its appearance, and our knowledge of that which we had already traveled over, we were ready to pronounce it a dreary, naked, barren waste, if we except a few groves here and there, near the villages, but that when we came up, along the verge of the woods, from the

was industriously laid out into little fields, exhibited a more pleasing and fertile appearance.

On leaving this station we soon lost sight of the vessels, and entered their breadfruit plantations, the trees of which were a good distance apart, so as to give room to their boughs to spread out vigorously on all sides, which was not the case in the crowded groves of Otaheite, where the trees were drawn up tall and slender, and where we found them always planted on the low plains along the seaside; but here the size of the trees, the luxuriance of their crop and foliage, sufficiently show that they thrive equally well on an elevated situation.

The space between these trees did not lay idle; it was chiefly planted with sweet potatoes and rows of the cloth plant. As we advanced beyond the breadfruit plantations the country became more and more fertile, being in a high state of cultivation; for several miles round us there was not a spot that would admit of it that was not with great industry cleared of the loose stone and planted with esculent roots or some useful vegetables or other. In clearing the ground the stones are heaped up in ridges between the little fields and planted on each side, either with a row of sugar cane, or the sweet root of these islands (*Dracena ferrea*, Linn.), where they afterwards continue to grow in a wild state, so that even these strong, uncultivated banks are by this means made useful to the proprietors, as well as ornamental to the fields they intersect.

"The produce of these plantations, besides the above mentioned, are the cloth plant (*Morus papyrifera*, Linn.); taro, and sweet potatoes; the latter are here planted three or four feet apart and earthed up round their stems much in the same manner as the common potatoes are treated in England, and when they dig any up we remarked that after stripping off the potatoes they carefully put the old plant again in the ground for the ensuing crop. But the taro, being naturally an aquatic plant, required, in this dry soil, a very different treatment; there were generally two or three of them planted together in a hole, about nine inches below the surface of the ground, and these holes were about four feet apart, and as the plants grow up the

earth is gathered round their stems, in the form of a basin, to retain the water, either from rain or otherwise, about their roots, and the whole field is generally covered with a thick layer of hay made from long, coarse grass, or the tops of sugar cane, which constantly preserves a certain degree of moisture in the soil that would otherwise be parched up by the scorching heat of the solar rays, and in this way they rear up these roots to very great perfection, even on a dry, elevated situation.

"These plantations being on a gentle declivity we continued our course through them till we ascended near the verge of the woods where we found two or three small huts that were inhabited, in one of which we took up our abode for the night, our distance from the vessel being about six or seven miles. In a small spot neatly railed in with reeds before the entrance of our hut we discovered about a dozen young orange trees growing very luxuriantly; on enquiring we found them to be part of those seedlings which were given to Tooworero when he landed last year and which he very prudently shared amongst different chiefs; these had fallen to the lot of Skeehavarero, the chief of Kavarooa, on whose ground we now were, and a finer climate or a more suitable situation we are certain they could not be placed in, and therefore trust that they will soon arrive at that perfection that their fruit may, in a few years, prove a valuable acquisition to the natives, as well as to those vessels that may touch here for refreshments.

"The land here is divided into plantations called heree, which take their rise at the seaside and proceed up the country, preserving a certain breadth without any limitation or as far as the owner chooses to cultivate them; and without the protection either of high walls or gates the produce of these fields is as secure from molestation as if they were barricaded with the most formidable barriers, for the people that accompanied us durst not, without obtaining our leave, even touch a sugar cane though they grew everywhere, on both sides of our path, in abundance, and as it were, in a wild state. Indeed, without such salutary laws and great industry, it would be impossible for these islands to maintain such a numerous society, for it has often surprised

us from viewing only the small spots cultivated about their villages near the seaside, in what manner such a vast number of inhabitants subsisted and have wherewithal to spare in such abundance to strangers who touched here for refreshments, and who of late years have been very numerous.

"But seeing now these upper regions so industriously cultivated and teeming with productive crops, we could no longer remain ignorant of their vast resource, and we are certain that nothing but wars—destructive wars and commotions can ever reduce them to scarcity, seeing they thus avail themselves of nature's bounty in the conformation of their country, by extending their cultivation to different regions of the air, they secure a continued succession of crops and therefore can never be destitute of supply.

"The climate in this elevated region appeared to us exceedingly mild and pleasant; a slight shower of rain that fell, towards evening, helped to show that the fields had already felt the vivifying powers of spring, and gave a refreshing lustre to that scene of industry and rural economy which lay before us and which terminated, by a long and gentle slant, in a boundless ocean. While we were thus gratifying our eyes with this vast and interesting prospect before us, the woods behind us resounded with the wild melody of numerous warblers that formed a shrill, heterogenous concert by no means displeasing to our ears.

"While we were taking our repast in the evening we observed the natives pay particular attention to John Smith, for fear, as he was a chief, he should in the least transgress their usual forms of eating and drinking, from living in company with us; he was allowed to make use of nothing but what had been consecrated at the Morai before we came away, and when he began his meal, besides the light we had in common, a consecrated light was kindled before him, which was carefully attended, as it must not go out while he was eating; at the same time all the natives cowered down and none of them durst get up, or move from the place they sat in, till he was done, and then every atom of his leavings—bones and all, were carefully picked up and burnt in the fire, as there was nobody present that durst make use of them.

"During this time, too, the women had all left us, so that while we enjoyed every liberty of eating and drinking, when, where, and how we pleased, he was restricted to particular forms and rules and so narrowly watched that he could not even chew a sugar cane as we were coming up the path, because it had not been particularly consecrated. This made him sometimes break through these forms, in a violent passion, cursing and swearing at them and their taboo, too, which always threw them into the greatest agitation, trembling with fear and horror, that I was frequently obliged to interfere and entreat of him to be more circumspect of his new chieftain's dignities, for fear of any disagreeable consequences.

"Before we set out next morning, the 26th, a party of the natives from Karakakooa passed our hut, who were going up to the woods with calabashes and a small cask, to fetch water for our vessels, which shows that the vicinity of the bay is but badly supplied with that necessary article. One of these natives, who met us the day before, going down under a heavy load of calabashes full of water, showed us three small iron nails he got for his labor, with which he seemed very well satisfied; and if we consider the great distance he carried it, over a rugged path in the heat of the day, it proves that this metal still holds a high value amongst them, and that a settlement established at these islands would in this way procure indefatigable laborers at a very easy rate; and how far preferable this would be to that disgraceful mode of slavery by which we still continue to cultivate our West India Islands; in short, it might be well worth the attention of government to make the experiment and settle these islands by planters from the West Indies. Men of humanity, industry and experienced abilities in the exercise of their art would here, in a short time, be enabled to manufacture sugar and rum from luxuriant fields of cane equal, if not far superior, to the produce of our West Indian plantations, and that, too, without slavery; by merely cherishing that tractable principle of industry and labor in the inhabitants they might be gradually led on to perform every duty belonging to a plantation, with the greatest ease and cheerfulness and at very little expense, which would

certainly be much more satisfactory to the employers and to the world at large than if they ground under the galling yoke of slavery, which God forbid they ever should. They possess ingenuity, industry and abilities in an eminent degree, and the only thing wanting is mildly to guide these into a proper channel to render them useful to themselves and mankind in general.

"After breakfast we pursued our course onward with a fair prospect of a fine day, and soon after entered the wood, by a well-trodden path, on both sides of which were luxuriant groves of plantations and bananas, reared up with great industry in the neatest order of cultivation; these being tender vegetables, required a sheltered situation and good soil, to bring them to perfection, and here they enjoyed both, in a suitable climate—the soil being chiefly formed from the long and continuous falls of decayed vegetables mouldering away by the process of time, and the busy operations of nature, was rendered excessively rich and would, we are certain, at this height, be capable of producing in perfection most of our English wall fruits, as well as most of the European esculent vegetables.

Every step we advanced through these plantations became more and more interesting, as we could not help admiring the manner in which the little fields on both sides of us were laid out to the greatest advantage, and the perseverance and great attention of the natives in adapting to every vegetable they cultivate, as far as lays in their power, its proper soil and natural situation, by which their fields, in general, are productive of good crops that far exceed, in point of perfection, the produce of any civilized country within the tropics.

"Having advanced beyond the plantations we found the wood, apparently thinned of the larger trees by the inhabitants, was yet so thick and crowded with long fern and brushwood as to be almost impracticable except by the path we entered, which still continued good, and which we pursued, passing two small villages which were inhabited, consisting each of a few temporary huts, and we took up our quarters for the night, at a third village, a little beyond them, where, on our arrival, a small hut was cleared and it was instantaneously renovated with fresh thatch of

fern and plantain leaves, and new floored with long grass on which a clean mat was spread, and we found ourselves very comfortably sheltered, about twelve miles distant from the bay. Some showers of rain that fell towards the evening sensibly cooled the air and left a dampness in the woods with which we were now closely surrounded, that it made it a necessary precaution to keep up a constant fire before our hut, to prevent its baneful effects during the night-time.

“Our ascent this day was considerably retarded by my botanical researches on both sides of the path when any favorable spot occurred, where the woods were penetrable, and the rainy appearance, too, induced us in some measure to take up our quarters early, as our guides informed us that we could not get any place of good shelter beyond our present situation.

“Many of the numerous ferns which composed the denser parts of the wood were known to me and are common to other tropical countries, but most of the trees and shrubs that made up this vast forest were, from their appearance, entirely new to me, and many of them, I believe, peculiar to these islands. I therefore diligently searched for their flowers and their fruits in order to be able from thence either to ascertain or describe them, but few of them being at this time in bloom, my researches were in a great measure fruitless, on which account I could not help considering my situation as the most vexatious and tantalizing that a scrutinizing botanist could ever be placed in, surrounded on all sides by new and rare objects and yet destitute of the means of obtaining a knowledge of them, by not being able to visit them at different seasons of the year; but such is the situation in which a transitory visitor must often be placed with respect to botanical pursuits.

“The villages we passed, in the wood, I said were temporary, as the occupiers, consisting of a few families, had come up here only for a time to pursue various occupations.

“The men were differently engaged, some in felling of large timber for various purposes, others in hollowing out and forming canoes and planks in the rough, which after laying some time in the wood, to season, were dragged down, in that state, to the sea-

side, to be finished by their canoe builders who are distinct persons from those who thus form them in the rough; while a third set seemed to have no other occupation than that of catching small birds for the sake of their feathers, especially those of a red, yellow, or black color; these feathers are in great estimation; it is with them that a large portion of the rents are annually paid to the chiefs by the lower class of people, who thus employ themselves by catching the birds with bird-lime, which they do by spreading a little of it here and there on the boughs, and placing two or three red berries near it, which the birds are very fond of, and as they perch to eat them they are entangled with the bird-lime. But the natives are very cautious of not exterminating the birds by killing all that are in this manner caught; many of them, after being stripped of their most valuable feathers, are again set at liberty, and run the chances of being fleeced in the same way next year.

"The women were no less assiduously in collecting and manufacturing the bark of a shrubby species of nettle which grew wild in the woods, for making a kind of coarse russet cloth, and which they prepared and dyed as follows: The inner bark being separated from the long twigs, the exterior rind was made up into small bundles, and a certain quantity of a particular kind of fern—a species of *Adiantum*—mixed with it, and both wrapped up together in the leaves of plantains or the *Dracæna ferrea*, Linn.

A number of these bundles being in this manner got ready, an oven is made by digging a hole in the ground, where they are put, intermixed with hot stones, and covered up with green leaves and earth, in the same manner as they dress or bake their victuals. By this heating, or sweating, process the fern imparts a reddish brown color to the bark, which is afterwards beat out into cloth.

After breakfast on the 27th we continued our journey up the mountain, and as we advanced we found the path become more and more rugged, with numerous dead trees laying athwart it in every direction, which made our progress slow and tedious; the wood continued close and impervious on every side excepting by tracks here and there, where cut-down trees, or canoes, had

been dragged into the path to take them down to the seaside; the largest trees which composed this vast forest I now found to be a species of mimosa, with certain leaves somewhat similar to those of New Holland; its wood is hard and close-grained and takes a very fine polish, as may be seen by the canoes, of which they are always made; it is, perhaps, the largest tree that has yet been discovered, of the genus. I measured two of them near our path, one of which was seventeen feet, and the other about eighteen feet in circumference, with straight trunks of forty or fifty feet, and strong, bold, spreading branches.

"As we advanced the wood was more crowded with these trees, than lower down, where both sides of the path had been thinned of them by the inhabitants. I found here a species of *Rumex* that frequently climbed up these trees to at least forty feet high, whose pendulous branches and large leaves and bunchy flowers were very ornamental. I named it '*Rumex gigantum*,' and was happy, on my return to England, to find that Mr. Aiton had succeeded in rearing fine plants of it at Kew, from the seeds I sent home for His Majesty's garden.

"After ascending, with great fatigue, four or five miles further, we came to the end of the path, beyond which it was impossible to penetrate, from the density of the forest, which was everywhere closely filled up with underwood and luxuriant ferns. We therefore erected some huts here and encamped for the night, and while the operations for this purpose were going forward I employed my time in botanical researches on both sides of the path, sending the natives up the trees, or into the wood as far as they could penetrate, for every kind of flower and seed they could collect. We found near the head of this path a spot clear of large trees but covered with a great variety of low shrubs, among which was a new species of *Vaccinium*, with red berries, which, on comparing, we found to be those used lower down by the bird-catchers. Though this spot was not very extensive it afforded us the most interesting of our collection of plants in this excursion. Among them we met with a new species of raspberry which was pretty common at this height of the mountains. We estimated our distance now to be about sixteen miles from the

bay, on a gradual ascent towards Mawna-roa, and tho- we climbed up some high trees to look round us we could see nothing like that described in Cook's Voyage, of alternate woods and clear spaces, on this side of the mountain; there was nothing within the verge of our sight but one vast and continual forest.

"So bigoted are these people to their religion that here and there, on the sides of the path, they have little *Morais*, or spots consecrated to their Deity, which none of them ever pass without leaving something—let it be ever so trifling—to obtain his good will, and they were highly delighted, indeed, when we followed their example in throwing a nail or a few beads, or a piece of tape, before their Deity, which the women were not allowed to pass without uncovering their breast and shoulders.

"During the night time we found it very necessary to keep a large fire burning before our huts, as we felt the cold much more piercing than on the preceding evening, tho not to the degree we expected from the report of those who ascended this side of the mountain in Captain Cook's time, for before sunrise, in the morning, which is generally the coldest time, the thermometer was only at 52 degrees.

"After taking some refreshments, on the morning of the 28th we set out on our return home, by the same path we had ascended, till we came nearly out of the wood, and then struck off by a path that went a little more to the southward of our former, through plantations in the highest state of cultivation: every field bore the marks of indefatigable labor, perseverance and industry, which they were now amply repaying by productive crops, but as we came down towards the seaside we walked over the most barren, rocky country that can possibly be conceived, composed of nothing but rugged cavernous lava full of chinks and fissures that made it both dangerous and difficult to travel over.

"We arrived at a village, in the afternoon, called Hananou (Honaunau), on the seaside, about two leagues to the southward of Karakakooa Bay. As we approached it the natives came out in great crowds to meet us, the young women expressing their joy in singing and dancing from every little eminence, to enter- in us, while the men received us with a clamorous welcome

and an officiousness to serve us that would have been troublesome and teasing, had they not been kept in good order by John Smith and the natives who accompanied us, who exercised their authority by clearing an avenue for us whereon we went.

"They took us to a large house that was tabooed for the king, with a number of smaller houses contiguous to it for sleeping in and for his attendants when he comes to the village, and we were told that he had a set of houses kept for him in the same way, in every village he is likely to stop at round the island, which, when he once occupies or eats in, cannot afterwards be used by any other.

"Here clean mats were spread for us, to stretch ourselves out on after the fatigue of our long journey in the heat of the day, while a number of the natives placed themselves round us to roomie and pinch our limbs, an operation which we found, on these occasions, very lulling and pleasing, when gently performed.

"Cocoa-nuts, plantains, and every kind of refreshment which the country afforded, were got ready and supplied to us in abundance, and in justice to the friendly and hospitable disposition of the natives, we must observe that during this excursion our wants were often anticipated and provided for with the utmost alertness the moment they were known; they took care of everything we had and behaved towards us with a scrupulous honesty that we could not help admiring. Every one of our own followers had his post of trust allotted to him when we set out on the journey, and in no instance did any of them betray the confidence reposed in them, but performed their duty with fidelity and ease.

"In the evening a double canoe arrived from Karakakooa with several empty casks in her which the chief of the village had undertaken to fill with good water for the "Discovery," and at the dawn of day, next morning, we heard the cryer go through the village summoning all the natives to set out for the mountains to fetch water to fulfill his contract; and, in a large Morai close to us we now and then heard the hollow sounding drums of the priests who were up in the dead hour of the night performing their religious rites.

"As the country along shore was so dreary and barren with picked rocks of lava, we engaged a large double canoe to carry us to Karakakooa, where we arrived on board the 'Discovery' in the forenoon of the 1st of March, and found that the main-mast which the carpenters began to fish before we went away was now finished, the rigging overhauled, and the ship nearly watered, but the sails were still unbent."

WAIKIKI SURF RIDING.

THIS picturesque sport, unknown outside of these islands, steadily grows in attractiveness to beholder and fascination to participants. It is one of the charms and attractions of Waikiki, a locality famed of old for the suitability of its surf for such aquatic contests. Its proximity to Honolulu enables many of the young people of this city to familiarize themselves with this sport, first in canoe, then with board, and who in turn delight to initiate strangers in its intoxication.

Thus was Alexander Hume Ford, the writer, introduced to its charm this past summer by young Freeth, who had so mastered its intricacies as to be recognized as an expert. Ford entered quickly into the spirit of surf riding, and in his enthusiasm he sought to formulate the principles of the sport, and mastered it to that extent he instructed and enthused others to their great delight. Among those who were thus fortunate to be let into the mystery of its principles to master its difficulties and participate in its exhilarating pleasure was Jack London, whose experiences of the first day's lessons are told in a late Eastern journal by him while he was done up in cotton batting from the sun-burn he suffered, so fascinated had he been with the new pleasure that he lost all regard for time's consequences under a tropic sun. But like Ford he is won to the unequalled delights of surf-board riding in Hawaii, and will familiarize world-wide readers with this attractive sport, once so universal throughout the islands, and one of the all-year-round charms of sea-beach bathing at Waikiki.

LAVA TREE MOLDS AND LAVA STUMPS.

BY REV. W. D. WESTERVELT.

THE lava thrown out by the volcanoes of the Hawaiian Islands has innumerable forms. Its five great varieties, however, are pahoehoe or comparatively smooth lava; a-a or broken, ragged lava; oni eleele or black sand; cinders which are like vast masses of refuse from blast furnaces, and sometimes a large amount of what is called volcanic mud thrown out when water is mixed with ashes and cinders and the eruption is somewhat geyser-like in character.

Tree molds and lava stumps are found almost always in pahoehoe alone. When pahoehoe is pouring forth quickly and in enormous quantities it soon overflows a large area of land covering it with layer after layer of smooth hard lava which cools very quickly. Pahoehoe is apparently very hot and in a liquid state, and yet after it is exposed to the air it quickly solidifies into whatever shape it happens to assume at that time.

In many places throughout the Hawaiian Islands the pahoehoe flows, both ancient and modern, have come down upon groups of trees or forests. Of course the intense heat of the flowing lava stream usually burns up everything which lies in its path, but lava which is being pushed off to one side or the other is undergoing a cooling process and rapidly hardens.

Under such conditions the lava which first strikes a tree is so far cooled that the green wood and sap against which it flows act as a quick chill upon the cooling mass and it is solidified instantaneously around the tree trunk. In this way both stumps and molds are found in great masses of lava to the surprise of those who make a study of the various conditions affecting Hawaiian eruptions.

It would seem at first glance as if a mass of lava ten to twenty feet thick and sufficiently liquid to continue flowing would contain heat enough to burn anything with which it came in contact, but this was not the fact. There are many places in the islands,

and especially on the Island of Hawaii, where lava has cooled around a standing tree, burning the bark and perhaps the outside portion of the wood, thus killing the tree, but leaving the dead trunk standing in its jacket or prison of lava. After a long time the dead wood has rotted and the debris has fallen to the bottom, leaving simply the mold of lava which has been cast around the trunk. This mold extends from the surface of the flow to the ground over which the lava originally forced its way.



TREE MOLD AT KILAUEA.

Looking down these holes the observer can frequently trace the marks made in the lava while pressing against the bark or wood of the tree. Sometimes the heat has been continued underneath the cooled lava surface and has dried the tree, finally setting it on fire and burning it to ashes, leaving the mold as a blow hole for

any escaping gases which have been flowing along with the molten rock. These gases carry cinders and fragments of lava as they burst forth. In this way mounds have formed around the openings of some of the tree molds, changing the general appearance so that the previous existence of a tree mold would not be suspected except for the depth of the hole and its close connection with other molds.

Usually these deep holes in a lava flow occur individually rather than in numbers, but there is a very interesting group on the edge of the koa forest not far from the northern brink of the volcano Kilauea and about two miles from the Volcano House.

An ancient eruption, probably from Kilauea rather than from the summit crater Mokuaweoweo, on Mauna Loa, poured forth a vast quantity of pahoehoe which covered the ground to a depth of from fifteen to twenty feet, engulfing a number of trees.

There is a large koa grove by the open glade in which the Kilauea tree molds are found, growing apparently on the surface of the thick pahoehoe deposited over all the surrounding country. Some of the molds are of such size and character as would naturally come from immense koa trees. They are five or six feet in diameter. Koa is the Hawaiian mahogany. It is a curly, fine-grained, very hard wood, and would burn very slowly and might readily cool a mass of sluggish lava flowing against it.

Tree ferns have taken root in some of these deep holes, finding life in the debris coming from the decay of the destroyed trees. Some of these ferns have grown until their tossing plumes fill the mouth of the tree mold, yielding gentle motion to the touch of the passing breezes.

These koa casts are very interesting, yet very close to them are much smaller openings. These are only a few inches in diameter and the hole, although very deep is very slender, presenting all the characteristics of coconut trees around which the pahoehoe has placed its impression. There are about twenty well-defined tree molds and others more or less perfectly outlined, beside mounds which, if opened, would probably show holes overgrown by ferns and grasses.

This peculiar group of tree molds or deep holes in an ancient lava flow is one of the most interesting places to visit in the neighborhood of the great crater Kilauea, for a sounding line will show the thickness of a lava flow which was sufficiently cool to chill into stone around trees, while the characteristics of the engulfed trees can also be studied.

On the Kau side of Kilauea along the slopes of Mauna Loa are many holes in lava resulting from the decay of trees which have been killed in the manner described. In them new life is starting and the world old story of life rising from death is told in a lava field.

Another peculiar form of a cast or mold is found here and

there throughout the islands. The lava flowing underneath a cooling surface burned a tree up to the surface. That part of the trunk which stood above fell on the cold lava. After a few minutes a portion of the flowing lava beneath found a weak place in the crust and gushed forth, covering the fallen tree trunk, hardening almost instantaneously, making an excellent cast. Such casts in the surface of a lava flow are to be found in the district above Hilo, known as Kaumana.

A very curious eruption took place some years ago on the edge of Kilauea iki, a small extinct crater connected by a narrow passage with the great crater. An eruption broke forth with great violence near the top of the crater wall. It shot out like an immense spurt of water upon trees below, depositing bunches of lava in the branches and then falling in a mass around the trunks and roots. This lasted but a few moments, then a crack opened into the wall of Kilauea iki more than a hundred feet below and the rest of the lava partly poured down the sides of the crater Kilauea iki and partly flowed into the large crater of Kilauea. This deposit in and around the trees came from above them and is entirely different in its character from the deposits forming

either tree molds or tree stumps.



LAVA TREE STUMPS.

About twenty-five miles south or east from Kilauea, in the district of Puna, is another place of great interest to the student of the battle between forests and volcanic eruptions. Here are to be found hundreds of lava tree stumps which are the opposite of the tree

molds. They are casts built up in the air rather than down in the lava. In both cases all that is left is the shell in which a destroyed tree made its last struggle for life.

These stumps appear like an army seized while standing and petrified into enduring stone. They are objects of great curiosity and conjecture. They are scattered over quite a large extent of territory and appear to have been made by different eruptions. They rise from one to even fifteen or more feet above the surface of the lava.

At first thought a careless observer would say that these stumps were made by a subsidence of lava leaving the cold mass standing as it had hardened around the tree whose ashes it ultimately held; but this is not in accord with the way in which lava flows.

An eruption cools on the surface rapidly while underneath in an underground channel the molten lava continues to force its way onward. The new lava is always pushing itself out from under the lava which has already cooled. This would tend to lift the surface of a lava field rather than depress it. In this lifting process the stumps would naturally be broken and swallowed up.

The simplest theory for the formation of these sentinel-like stumps is one propounded by Mr. Rufus Lyman, who has passed the greater part of his life in Hilo and in Puna, and has a number of these lava stumps on his own land. Mr. Lyman thinks that the stumps were made by lava forced up by the pressure of the enormous mass of an eruption of lava pushing itself out wherever any opening occurred in its hardened surface. This is a very simple and satisfactory explanation.

The process can be briefly described: An eruption usually starts near the mountain top, sweeping everything before it as it rushes down the steep sides until it reaches the more level places over which it gradually spreads. Here would be found a heavy growth of hard wood trees. The lava strikes the forest. Many trees quickly burn, while others larger and more abundantly filled with sap or perhaps of harder wood, chill the lava and it hardens around them, drying the outer rim of wood. This burns, leav-

ing a small space around the tree. This space offers an excellent outlet for lava which is almost cool and yet which is forced out by the great pressure behind it. This space is practically a blow hole up which lava is pushed which hardens at once as it falls in a ring on the lava around the blow hole. More lava is pushed up. This is built up on the first ring. Then more and more until the pressure is exhausted. This leaves a cast of lava around the dead trunk of the tree. There are lava stumps which show scratches and lines on the outer surface which could only have been made when lava was forced up along the trunk of the tree past the hard edges of the lava flow around the trunk. The scratches were made in *soft* lava while passing these hardened edges. Then lava pushed up inside of this first ring which was solidifying would build up the cast and not necessarily show scratches. This fact strongly supports Mr. Lyman's theory that

the stumps were made by lava forced up rather than by lava which remained sticking to the tree as an eruption passed by.

Sometimes the pressure forces the lava ring up until it reaches the branches and hardens around them as in the illustration of the group known as "The Camel," where cross branches of different trees carry the lava until the trees are literally bound together.



"THE CAMEL."

Very frequently the inner surface of these lava stumps is marked by small squares separated from each other by little ridges, the squares averaging perhaps half an inch in size. They are exactly what might be expected if the wood instead of being burned had been heated into charcoal and the lava had made a cast or mold of the charcoal.

Very infrequently the interior of such a stump has been protected from rain and decay by an over-arching roof of lava, then the charcoal itself is found firmly imbedded in the lava cast. Fine specimens of charcoal preserved in this way and the casts in which charcoal is fastened have been found by the writer and placed in the Bishop Museum of Polynesian and Hawaiian Antiquities in Honolulu.

Sometimes these stumps have received seeds of ferns, grasses and even trees upon the decaying wood inside. These seeds taking root soon crown the black mass beneath with a picturesque outgrowth. Trees fifteen to twenty feet in height are found growing from the interior of lava stumps. After a time the roots fill the cavity and force the walls of this prison apart. The lava stump is destroyed and its tenants decay among its fragments.



"PELE'S ARM CHAIR."

Innumerable forms are found in this lava forest, giants with grotesque caricatures of the human face; large and exquisitely formed vases filled with ferns and flowers; a host of pillars and even figures of animals. In one place a fine chair was made in which the traveler seats himself for a little rest. This

has been named "Pele's arm chair," as if the goddess of fire had stopped here for a little while to watch her lava fiends wreck havoc around her.

The legendary origin of the lava stumps is interesting: The goddess Pele delighted in holua races. The holua was a long, narrow sled on which chiefs coasted down grassy hill sides. Pele as a handsome chiefess appeared from time to time in different places in the islands with her holua sled. Finally contests or races would be arranged. Pele becoming angry would seek to destroy those who opposed her.

Kahawali, Kamapuaa, Kumukahi, and Papalauwahi are legendary chiefs with whom Pele was said to have raced in this southeastern part of the Island of Hawaii. Both Kahawali and Papalauwahi had their people destroyed by the lava down which Pele rode as she tried to overtake and burn them up. Kahawali's race with Pele was down hills not far from the ocean. Papalauwahi was said to be a chief of the region in Puna higher up the mountain where most of the lava stumps are now standing. Pele poured forth floods of lava to catch Papalauwahi while he raced with her. The great plain was covered with people of Puna gathered to watch the contests of their chiefs. Many of these were caught by the eruption. Pele left them standing all over the plain as pillars of lava and hastened on to destroy the chief. Thus came the forest of lava forms whose legendary origin is the story of a holocaust.

EARLY RICE GROWING.—In "Notes on History of Rice Culture in the Hawaiian Islands," in the ANNUAL for 1877, reference is made to several unsuccessful experiments in former years. Chamisso is authority for the statement that Marin (in 1818) "has lately had rice grow from Chinese seed; after many fruitless attempts." Cheever, in his visit, (about 1850), mentions that "a family of Chinamen were raising rice in the Wailuku valley, Maui, which afforded them two crops a year, but they lacked necessary machinery to thresh and winnow it."

HAWAII REDEEMING HERSELF.

WHILE the lawmakers of 1905 made the grave error of pandering to the liquor traffic by removing the slight restrictions that prevailed, and made possible the establishment of saloons in all parts of the islands regardless of the petitions or protests to the contrary, it is to the credit of the last legislature that an effort to curtail the evil is being made by the enactment of a law containing restrictive features which is encouraging to the hearts of temperance workers in general, as also those having the true interest of Hawaiians at heart.

Among the commendable features of the new law in operation may be enumerated the following, viz: the appointment of a Commission on each island to issue licenses; which body has power to grant, or refuse applications, or suspend, remove, regulate and control any license; increase of license fees; abolishment of certain licenses that had proved iniquitous; publicity of notice of all applications; forbidding the sale of liquor to women and minors, or permitting them on the premises; defining clearly hotels and restaurants under the act, and in its various provisions overcoming the ambiguities of the old law.

As a result the number of saloons have decreased and are controlled as to number and locality. The so-called saloons that infested the neighborhood of Honolulu's markets, as also several resorts that were deemed public nuisances, have been denied a license, and in the effort in behalf of a number of these applicants, through legal counsel, to force their demands, the Commission has been upheld in every case that has come before the courts. The "free lunch" scheme of saloons are done away with, and like efforts to allure or blind the public to the true intent and character of the place licensed is enjoined.

There were a few desirable features of the old law which, if embodied in the new act would have strengthened it materially,

yet, it is proving an effective check on an evil that was making too rapid inroads on the life of the people.

An effort for a local option law was again made at last session and a vigorous fight maintained, but the measure lost eventually by one vote. Doubtless many of its opponents felt that the publicity given all applications for a license and the time allowed to prepare and file protests was a sufficient local option feature in itself to safeguard the public and should therefore satisfy temperance advocates.

Under the new law, and the more aggressive work in progress by the Anti-Saloon League, there is encouragement to the hope that Hawaii will yet redeem herself, for the same benefits that are noticeable on this island are being experienced on the others, of which Kauai appears to have conquered its difficulties best.

SPLENDID SAILING.—In the preparation of the list of record passages on pages 36 and 37 there was found the mention of a trip from San Francisco that puts the oft-quoted record passage of the *Fair Wind* far in the shade, as seen in the following quotation from the "Alta Californian" in 1852: "The clipper ship *Challenge*, which sailed hence in May, for China, was off the harbor of Honolulu in the unprecedented short run of *eight days*—the quickest by many days ever made,—and on the *twenty-third* day from this port (fifteen days from Honolulu) she was within 400 miles of Hongkong; surpassing in speed every other trip on record. This time was made with moderate breezes." She did not enter the harbor but simply touched off port.

The best trip previous to this was one of *eleven* days by the schooner *Golden Rule*, which arrived here Dec. 2nd, 1851.

HAWAII'S DIFFERENT LAVA FLOWS

As Shown by Various Authorities on Hawaiian Volcanoes.

VERY general interest and enquiry was made during the period of volcanic activity, described in the preceding paper, as to the differences between *pahoehoe* and *a-a* lava flows, and the cause or causes therefor. The question is a very natural one, and doubtless arises with each recurring flow of sufficient magnitude to attract interested sight-seers. The answer, however, meets with some difficulty of solution.

Various theories are presented by one and another of those who have witnessed these flows, some of which so conflict, that it may help the study of the question by reference to the different authorities on the volcanoes of Hawaii, from whose writings we would acknowledge our obligations for the following extracts covering the different lava forms of these islands.

Dr. Wm. T. Brigham, in his (the pioneer) work on Hawaiian Volcanoes, describing a lava flow south of Kealakekua, has this to say relative to the kinds of lavas:

"¹ The surface of this, as of all other Hawaiian streams, present three aspects; the *pahoehoe* or velvety lava, which is folded and twisted in the manner of a viscid fluid; the *clinkers*, or scoriaceous lava, rough and covered with fragments; and the *a-a* or spongy lava, a form of which no description can convey an idea of the horrible roughness and hardness. The *pahoehoe* is the most common form, and occurs when the flow passes over rocks or dry earth at a gentle slope, although the inclination may be more than 50° without the formation of scoriæ if the ground be tolerably even and the current unimpeded. The scoriaceous lava, or clinker fields, are found wherever the stream passes through woods, wherever its course is impeded by obstacles or inequalities in the ground, or where the heat of the melted rock causes the explosion of caverns in the former flow over which it passes.

¹ Notes on the Volcanoes of the Hawaiian Islands, William T. Brigham, A. B., 1868, p. 31.

The a-a is the most puzzling to one who has never seen the actual process of formation, but it seems to occur when the lava meets with an impediment, which gives way just as the lava is granulated, rolling the spongy mass over, and building up high piles from which the liquid lava drains away."

At another point, in Kau, "near a row of trees extending from Kilauea to the coast, the road crosses" a variety of "what the natives call *pahoehoe lapalapa*—lava that looks like boiling water. It was formed by passing over caves in the older rock, exploding them and raising in this way bubbles and cones, as well as small tracts of a-a."

"² The structure of the fresh lava is not easy to understand, some parts of the same stream having a clear ring when struck, others being dead and flat. The mode of granulation certainly has much to do with the phonetic qualities of lava, as the a-a or simple granules sound quite differently in different places, although of the same composition and appearance."

Prof. Jas. D. Dana, with the aid of all our authorities on the subject to supplement his own observations, experiences and study, admits the problem "is a difficult one to understand" from the fact that the a-a stream is less often seen in process of formation." On the other hand, Capt. C. E. Dutton, from his studies of Hawaiian Volcanoes, though without an opportunity of witnessing a live flow during the whole period of his visit, in 1882, in treating the two kinds of lava, says:

"³ Why the same lava stream should in some portions of its extent take the form of pahoehoe and in others take the form of a-a seems at first mysterious; but the explanation is not difficult * * * when we come to examine the varying conditions which attend the flow of lavas and the circumstances under which they finally cool and solidify. When these lavas are discharged they come up out of the ground in enormous volumes, are intensely heated, and are very liquid. * * * As they become cooler they become viscous. The cooling takes place upon the surface of the mass while the interior still remains hot and

² Notes on Volcanoes of Hawaiian Islands, p. 121.

³ Hawaiian Volcanoes, C. E. Dutton, p. 96.

preserves a viscous liquidity. The superficial crust of cooled lava undergoes rupture at numberless points, and little rivulets of lava are shot out under pressure, * * * they spread out very thin and are quickly cooled, forming pahoehoe * * *

"The fields of a-a are formed by the flowing of large masses of lava while in a condition approaching that of solidification. * * *

"The same stream may exhibit pahoehoe or a-a, according to the circumstances attending the flow, and the final form which the stream takes is quite independent of the chemical constitution of the lava."

W. L. Green, author of "The Molten Globe," than whom none of our authorities had more practical knowledge from personal observation of various lava flows, covering over thirty years during this, his life study, hence, more opportunity for his deductions, which are as follows:

"⁴ There are two marked features in the main classes of lava



PAHOEHOE LAVA FLOW.

* Vestiges of the Molten Globe, Wm. Lowthian Green, Vol. II, 1887, pp. 171-2.

flows—which appear on the Hawaiian Islands, as well as other parts of the world—which are constantly attributed to the action of steam and gases, but which, in our view, have nothing to do with either. The two classes of flows are what are called in Hawaiian *a-a* and *pahoehoe*. The *a-a* (rough) looks like a great scoriaceous railway embankment. * * * The other class is *pahoehoe* (meaning smooth surface). This class of lava we saw flowing from the *a-a* stream of 1859, showing it is not a different kind of lava, but merely a different form taken under different circumstances of flowing. The lava seems to form *pahoehoe* when it is not in too great quantity, but runs out quietly.”

“⁵ The lava which came out at the crack above the main outburst of 1868 deserves particular notice, as a great deal of it seems to be a mass of lava froth. It flowed nine or ten feet deep amongst the small trees which stood in its path. * * * Many of the trees were entirely destroyed, but many others in the wake of this flow of lava froth were only charred on the outside, and although some of them were only seven or eight inches in diameter, they were not borne down by the weight of the stream. The whole evidence on the spot seemed to show clearly that at this part of the flow the lava was comparatively cool and very light; just such an effect, in fine, as a thorough mixture with the external air might produce. The substance * * * seemed to be little more than what is called basaltic pumice, which had been in a molten and flowing state. * * * The greater part of the flow below the fountain was compact lava, with much olivine, but at this part of the fissure, just above the fountain, an emission of froth only seemed to have taken place. * * *

“The *a-a* flows of the 1868 eruption, which ran over the table land of Kahuku, presented a remarkable contrast, as they stood like great black railway embankments, clearly defined on the bright green slope. Large crystals of olivine could be seen in this scoriaceous *a-a*, as one rode past it, as thick as plums in a pudding.

⁵ Vestiges of the Molten Globe, pp. 281-2.



"A-A" LAVA FIELD.

"There seems to be three classes of pahoehoe, all of which may be formed from the same lava; the different appearances arising mainly from the quantity that is released at once, and its heat and consequent fluidity. There is a kind that spreads over the surface on the ground in low bosses or tongues, and which was very plentiful in the flow near Hilo, in 1881. Then there is that which spreads over the surface in large regular mounds (*hornitons*), most of them hollow, and appear to arise from a more liberal supply of hot lava. The pahoehoe which ran out close

to, or from the fountains of 1887 differed from either of the above. It looks as if a running flood of very hot and therefore fluid lava, had been instantly frozen in its course—as indeed, it no doubt was.”

Of Prof. J. D. Dana’s deductions on the pahoehoe and a-a lavas, we make the following excerpts:

“^a The ordinary smooth-surfaced lava-stream, the pahoehoe, needs no further description. The a-a stream is less often seen in process of formation, and is more difficult to understand. With reference to an explanation of its origin, * * * the reader’s conception of it will be feeble at the best if he has not already had a view of chaos.

“*a.* The characters of the cooled a-a stream: (1) a mass of rough blocks one foot and less to one thousand cubic feet in size, loosely piled together to a height of twenty to forty feet above the general level; (2) the blocks bristling with points, but not scoriaceous, and less vesiculate than most of the pahoehoe; (3) the material rather brittle, and consequently, when made up of small blocks or pieces, easily broken down to a flat surface by the natives; (4) often a-a making part of a stream when the rest is pahoehoe, either of the two the chief part; (5) sometimes making one stream from a source, when another from the same source going off in a different direction is pahoehoe.

“*b.* The constitution and condition of the a-a stream when in motion: (1) a mass of rough blocks outside, precisely like the cooled a-a stream; (2) the motion extremely slow, indicating a semi-fluid condition beneath; (3) a red heat often in front among the blocks; (4) fused rock seldom exuding; (5) the blocks of the upper part of the front, as the stream creeps on, tumbling down the high slope, owing to retardation at bottom from friction, and thus a rolling action in the front part.

“One of the best descriptions of an a-a flow is that of Judge Hitchcock, which says: ‘Along the whole line of the advance the stream, twelve to thirty-five feet in height, was one crash of rolling, sliding, tumbling, red-hot rock, no liquid rock being in

^a Characteristics of Volcanoes, Jas. D. Dana, 1890, pp. 241-8.

sight; with no explosions, but a tremendous roaring, like ten thousand blast-furnaces all at work at once.' Another observer writes: 'I have stood by a wholly molten stream of lava which miles below was cooling into a-a.' * * *

"The *first* conclusion we may draw, in view of the facts, and especially the abrupt transitions in a flowing stream from a-a to pahoehoe and the reverse, and the independence in kind of lava, is that the difference must be connected with some condition in the region flowed over; and the *second*, that where the transition from one kind of stream to the other occurs, the conditions must be such as will allow of extreme liquidity in one part (the pahoehoe), and occasion imperfect liquidity or a pasty state in the other (the a-a).

"It follows from the size and rough character of the blocks of lava, *thirdly*, that in an a-a stream the lava must have been subjected to some deeply acting cooling agency to have made a crust thick enough for blocks ten to twenty feet or more in dimensions, far thicker than the crust over the tunnels in a pahoehoe stream. *Fourthly*, that the cooling was not from above downward, as in the pahoehoe, for there are no remains of a pahoehoe crust in the true a-a field,—but largely from below upward; and thence comes the absence of a crust and of the usual amount of vesiculation. There are no fragments of pahoehoe among the a-a fragments.

"These four conclusions appear to lead to a *fifth*,—that the region flowed over and making a-a was one having more or less of subterranean moisture, since only moisture could produce the partial cooling required; not a superficial stream of water that the lava could evaporate, and so put out of its way, but deeper and more widely spread moisture. * * * The a-a near Hilo, observed by the author, was over a valley depression, beneath which such an amount of moisture may well have existed. Another was along the foot of the meeting slopes of Mauna Loa and Kilauea, west-southwest of Kilauea. But the observations were too brief to authorize a positive opinion as to the influence of the form of the surface in these cases; and in others, according to the descriptions, the surface covered by the a-a is not always depressed.

"There must be more or less moisture in the dark recesses of Mauna Loa. The cold summit will find enough in the air to condense at most seasons; and the percolating rains must keep the recesses damp, and even make standing water wherever the rocky layers favor it. With subterranean moisture a hundred yards more or less beneath the broad lava-bed the generated vapors would ascend into and through the liquid mass, cooling it thus from below,—yet not so much the hotter bottom, which receives new supplies of lava, as the portion above. The part solidified would become shattered or broken up by the tearing steam and by contraction from cooling; and at the same time the flow at bottom would displace and tumble together the great and small masses, giving the pile height because of the jagged forms of the blocks and the cavernous recesses left among them. This view appears to meet the demands of the facts I have observed, and all others so far as they have been published. But I present it only as a suggestion.

"On this view an a-a stream is literally an aration or ploughed-up lava-stream,—a stream ploughed up from near its bottom, so that, although vesiculated, the surface vesiculation fails, as was well shown in the steam of 1880-81 near Hilo and in all the other cases the author has examined."

In dealing with the recent volcanic outbreak, Dr. S. E. Bishop in a contribution to "The Friend" remarks as follows on the forms of lava:

"⁷ The clinkers, or a-a, are a common form which the molten rock very commonly assumes in cooling. They are spongy, knotty, bristling fragments of rock of every conceivable form of raggedness, borne along on the heavier motlen liquid. Lava is a viscid, liquid rock, saturated with occluded gases, which, on reaching the surface, expand into innumerable visicles. If the lava cools and hardens immediately without further movement, it forms pahoehoe or ropy lava, whose visicles are spherical. But if it continues to move and roll along while half cooled, the visicles are pulled out of shape and elongated, and ragged, mis-shapen forms are developed."

⁷ The Friend, February, 1907.

MAUNA LOA'S OUTBREAK AND LAVA FLOW OF 1907.

TOWARD midnight of January 9-10, 1907, following a short period of moderate earth-tremors, felt in certain parts of Hawaii, volcanic flames shot forth from Mauna Loa, illumining the heavens with a bright glow observable from nearly all parts of the island, and on Maui, giving the general impression at first that the summit crater of Mokuaweoweo had burst into activity. Nor was the true source located for several days, though a diminution of the bright glare following an outbreak of lava on the 11th, seen high up on the southerly slope of the mountain, with its flow running down toward Kahuku ranch, led to defining it to the vicinity of the flows of 1867 and 1887, which seems appropriately termed the Kahuku volcano.

So violent was the activity, and so limpid the flow of pahoehoe lava, that the stream reached and crossed the government road on the Kona side of the flow of 1887 in two days, advancing in places at the rate of seven miles an hour, destroying the telephone lines and stopping traffic for a short time. By the 16th it had extended over thirty-five miles of waste land, and in a moving mass fifteen feet high and a half a mile wide, changed in character to a-a, it kept onward at the rate of thirty feet an hour, shortly afterward subsiding, but only to give way to a new flow which also crossed the road and appeared to have come from the same source, though at a much lower elevation.

The brilliancy of the outbreak and the reports of the flow coursing down Mauna Loa proved an irresistible allurement to many, not only from various parts of Hawaii, but from the other islands of the group also. Excursion parties formed one after the other and departed for the scene of action by the available steamers from Hilo, Mahukona, and Honolulu, for Kona ports convenient to the flow, requiring special trips of several vessels in addition to the weekly trips of the regular packets. Besides, many on Hawaii took advantage, early, of all available means

for land journeying, so that for a fortnight at least the travel was continuous and the parties large and enthusiastic. Probably no flow, for the length of time of its duration, was witnessed by a greater number of excursionists.

Viewed from different points by various early parties it was not strange that some confliction occurred in the first reports published relative to the source and magnitude of the flow, nor was the subject thoroughly understood until several days had elapsed and reports from parties formed for the express purpose of exploring the flow to its source were made public. This long and arduous undertaking over the roughest of country was accomplished by at least three different parties of several members each, the first account of which appeared just two weeks from the date of the outbreak, and located the source of the first flow as at Puu Ulaula, at an elevation of about 12,000 feet, and some three or four miles from the summit, in the Pohaku-Hanalei section of the Kahuku tract of Kau, while the second flow of several days later occurred about fifteen miles lower down. Surveyor E. D. Baldwin places the first outbreak at a much lower elevation.

When the McDougal party reached the source, the flows immediately below the first outbreak were cold and dead, though the continuous line of smoke between the first and second outbreak indicated the course of the flow in its underground progress. At the second outbreak was a molten mass boiling, splashing and overflowing on its mauka side, running around Kamoalaala hill and down on its course seaward. This flow at its outlet was of pahoehoe character, but turned to a-a as the distance increased, showing that the difference of these two kinds of lava-flow, of which much enquiry was made at the time, appears to be largely one of heat rather than formative material. The lava of the second flow was described by observers as pahoehoe at its emission, but as the distance increased it turned to a-a, and this was the character of the flows that crossed the government road, which showed a depth of from fifteen to thirty feet, while at the end, some three miles from the sea, it had piled up to a depth of over fifty feet.



MOVING MASS OF "A--A" LAVA, 1907 FLOW.

The Frear-Gartley party in their visit, after a ferilous journey over treacherous ground, reached a point toward Puu Keokeo where they could look right down into a lake of red hot lava about 800 feet in diameter. They had followed down a partly cooled flow and climbed up thereon to obtain a better view and kodac the scene. Getting used to their surroundings and somewhat braver they ventured nearer and witnessed the grander sight of the whole lake, with two great holes in the bluff out of which two streams of lava were running. A little way from the shore was a fountain that kept shooting hot lava fifty or sixty feet into the air. Occasionally the lake would cool in spots, making little black islands, and then a wave of molten lava would rush across the surface and bury them. This continually changing scene entranced the observers for some three or four hours.

A stream of hot lava ran between the party and the lake, yet desiring a closer view they crossed the flow, which was all aglow

underneath, and got right to the base of the lake which had built itself up about sixty feet. Looking up a glowing hill to the rim of the lake did not give assurance of safety, so they retreated, then rested for the night, taking hour watches lest the walls of the lake give way and rush down the hill, which sight, should it occur, they desired to see.

An effort was made next morning by two of the party crossing the flow again, to obtain a vantage view of the lake from the bluff, but in this they were frustrated by the hot lava.

On January 24th the flow ceased, but activity at the source continued for some time later.

Hon. G. C. Hewitt reports witnessing from the Kau side of the flow a strange spectacle on the night that it ceased. Briefly his account is as follows:¹

"Shortly after the cessation of the flow down the mountain side a large lake of lava formed on the higher hill above where the flow turned towards Kona. With a powerful glass I took pains to closely observe the formation of this lake. The side toward the mountain was a high perpendicular cliff of several hundred feet. As the lake began to fill up with liquid lava, this cliff became brightly illuminated and the reflections showed that it was filling rapidly. Upon reaching the level of the lower side toward Kona the lava flowed for a short distance and disappeared. This lake, I should judge, was at least half a mile long and perhaps as wide. Shortly after forming there began to arise upon the surface many vivid flashes, tree-shaped, but fluttering rapidly and becoming so numerous as to finally merge into one broad sheet of flame. These flashes were of the most vivid colors of the rainbow, and continued from one end to the other. Shortly after the clouds obscured the view and only a dim reflection could be seen. Meanwhile, apparently about a mile away and slightly lower in elevation in a deep gulch, a hill began to form, growing rapidly and becoming as it grew of a dull redish brown. This hill increased to an immense size, and widened till it was as large as Diamond Head, grandly glowing, then dying out to a dull red. The a-a seemed to be forming a solid hill that would remain permanently. At this time it cleared up again over the lake

¹ P. C. Advertiser, Feb. 3, 1907.

that had formed, but the beautiful flashes were gone, the lake apparently having greatly cooled off. About this time a stream of thin lava came down behind the hill that had formed in the gulch and began to disappear behind it. For a few moments it seemed to have gone on in some manner underneath the hill, but shortly the whole mass began to turn and gradually grow hotter, while large boulders began to leave the immense mass and roll down its face. These, after an interval, were followed by a sliding of the face of the hill; then the whole mass flattened out down the face of the mountain, spreading out fan-shaped and covering, it seemed, a territory at least a mile wide and far down the mountain side with a great depth of a-a. The formation and breaking away of this hill was most interesting, showing how mounds and hills are made and unmade in a few hours. Upon the collapse of the hill I looked toward the lake and found, as the clouds cleared away, that there was no indications of its existence.

"During the time of the flashes upon the surface of the lake the scene was indeed an inferno, caused doubtless by electrical conditions, as I could distinctly hear peals of thunder in that direction. There were many other flows of a-a spreading out over the mountain side, fan-shaped, and covering many miles of ground along the whole side of the mountain, but I only observed the formation of this one hill."

The outbreak seems to have been attended with an immense outpour of sulphur, all parties reporting the density of sulphurous gases in the vicinity of the flows, and its serious effect on many of the trees, ferns and shrubs met with.

Simultaneously with the cessation of the flow on the Kahuku slope of Mauna Loa the volcano of Kilauea renewed her activity to a degree exceeding any of her wakeful periods since 1894, the pit of Halemaumau filling up rapidly several hundred feet, its whole surface in commotion, and a seething mass of lava shooting forth at times from a place in the left wall of the crater, extending clear across the lake. This has been followed with intermittent quiet periods, to be each time awakened with fresh vigor, and in July its demonstrations of patriotism on the Fourth was noted by a number of distinguished visitors.

TABLE OF VOLCANIC ERUPTIONS, ISLAND OF HAWAII, 1790 TO 1907.

So far as known, extending the list given in "Vestiges of the Molten Globe."

Outbreak		Period of Activity	Approx. Height Main Issue	Character of Eruptions; Locality and Remarks.
Year	Month			
1790.....	Unknown.....	Few days.....	4,000 ft.....	Eruption of ashes, sand and poisonous gases from Kilauea, asphyxiating 400 of Keoua's army in its vicinity.
1801.....	"	"	"	Outflow on Hualalai, from western side to the sea, a distance of six miles, destroying houses and property.
1823.....	"	"	Below Kilauea.	Subsidence in Kilauea, with outflow at Kau, six miles wide.
1832.....	June 20.....	18 days.....	13,000 ft. and in Kilauea ...	Large overflow on Mauna Loa and subsidence in Kilauea; several streams of lava ran down the mountain, none reaching the sea.
1840.....	May 30.....	3 or 4 wks.....	1,244 ft.....	Large subsidence in Kilauea, with outflow in Puna reaching the sea in five days, 35 miles distant.
1843.....	January 9....	2 or 3 wks.....	Near summit 13,000 ft.....	Rather large outflow from Mauna Loa, on north side, from which two flows issued, which, however, did not reach the sea, though the lava discharge was immense.
1851.....	August 8....	3 or 4 days.....	Near summit.....	Small outflow from Mauna Loa, on west side.
1852.....	February 17..	1 month.....	10,000 ft.....	Large outflow from north side of Mauna Loa, followed three days later by another below it similar in size. The river of lava traveled 40 miles in three weeks and stopped within ten miles of Hilo.
1855.....	August 11....	15 months ..	12,000 ft.....	Very large flow from N. E. side of Mauna Loa, one of largest on record. One stream stopped some seven miles from Hilo, Feb. 12 1856, but activity continued at the source till November.
1859.....	January 23..	6 months....	10,000 ft.....	Large outflow from N. side of Mauna Loa, reaching the sea at Wainanali, near Kawaihae, in eight days, 38 miles distant.
1865.....	December 30..	4 months....	13,675 ft.....	Important fountain in summit crater; no flow.
1868.....	March 27....	2 weeks	2,000 ft.....	Large outflow from S. side of Mauna Loa, with subsidence in Kilauea. April 2nd a mud flow at Kapapala occurred, destroying houses, cattle, and 31 lives, followed by a tidal wave causing other loss of life and property. On 7th a stream of lava broke out above Kahuku, Kau, reaching the sea at Kalikili, continuing five days and ending April 11th.
1872.....	August 10....	5 months....	13,675 ft.....	Great fountain in summit crater only; no flow.
1873.....	January 7....	18 months....	13,675 ft.....	Great fountain in summit crater only; no flow.

TABLE OF VOLCANIC ERUPTIONS, ISLAND OF HAWAII (Continued).

Outbreak		Period of Activity	Approx. Height Main Issue	Character of Eruptions: Locality and Remarks.
Year	Month			
1875.....	January 10.....	1 month.....	13,675 ft.....	Important fountain in summit crater only; no flow.
1877.....	February 14.....	10 days.....	13,675 ft. and in sea.....	Large outflow on Mauna Loa from W. side of summit and in the sea at Kealakakua.
1880.....	May 1.....	Few days.....	13,675 ft.....	Short appearance in summit crater only; no flow.
.....	November 59 months.....	.....	10,000 ft.....	Very large outbreak on N. and E. sides of Mauna Loa; three large streams about 70 miles long in all; one reaching the edge of Hilo.
1884.....	January 22.....	Few hours.....	In sea.....	Unknown quantity. In sea off East Cape, Puna, 15 to 20 miles from Kilauea.
1886.....	March 6.....	Few hours.....	.....	No outflow found. Total subsidence of lavas in Kilauea.
1887.....	January 16.....	2 weeks.....	5,200 to 5,700 ft.....	Large outflow in Kau, south side of Mauna Loa, coursing near the flow of 1865.
1889.....	June 24.....	.....	4,000 ft.....	Remarkable activity in Kilauea; no flow.
1891.....	April 17.....	.....	4,000 ft.....	Slight activity renewed in Kilauea; no flow.
1892.....	July.....	.....	4,000 ft.....	Remarkable activity in Kilauea with overflow of Halemaumau.
1894.....	March.....	.....	4,000 ft.....	Important continuous changes in Kilauea with rising and falling of the lakes and final subsidence July 12th.
1896.....	April 21.....	2 weeks.....	13,675 ft.....	Great fountain in summit crater; no flow.
1899.....	July 4.....	.....	11,000 ft.....	Large outbreak on the east slope of Mauna Loa, with flow following somewhat that of 1880-81.
1902.....	August 25.....	.....	4,000 ft.....	Important fountain action in Kilauea; no flow.
1903.....	October 3.....	.....	13,675 ft.....	Great fountain in summit crater, followed after a month's duration with a small flow from Pohaku Hanalei.
.....	November 25.....	.....	4,000 ft.....	Sympathetic action in Kilauea; no flow.
1907.....	January 10.....	.....	12,300 ft. and 7,500 ft.....	Outbreak at Pohaku Hanalei on southern slope of Mauna Loa, with two "a-a" flows partly covering those of 1868-1887, but not reaching the sea.
.....	January 21.....	.....	4,000 ft.....	Important fountain action in Kilauea, intermittent in character for several weeks.

HAWAII'S SISAL FIBRE PROSPECTS.

FROM the last annual report of the Hawaiian Fibre Company it is gratifying to learn the encouragement that is being met with in the establishment of this new industry and the assurance of its importance as a most desirable export product.

The output of its fields for 1905 were 240 bales of first-class fibre weighing 132,311 pounds, which realized \$9,678.61, and for 1906, 224 bales of 126,751 pounds, which realized \$9,569.00, besides furnishing 95 bales assorted fibre of lower grades, one-half of which is carried over to the new year, the sale returns therefrom amounting to \$831.10. Sales of plants have been effected also for further undertakings in this Territory, as also for shipment to the U. S. Bureau of Agriculture at Manila, after enquiry and comparison with other sisal fibre producing countries, the department deciding in favor of the Hawaiian plant as producing the best quality of fibre. Enquiry for plants are also reported from such distant lands as South India, Queensland, Formosa, and the Philippines, as well as from Hawaii and our own Island of Oahu.

At the time of making up the report there were 860 acres under cultivation, of which, between three and four hundred acres would be cut during the season of 1907, and the prospect of harvesting six hundred acres the coming year. All the cultivated area was reported to be in excellent condition.

The sales of practically all the fibre so far manufactured have been made to the Tubb's Cordage Co., of San Francisco, at full market rates, a small lot going forward to their Portland branch. The Pacific coast consumption of fibre is 30,000 tons per annum, supplied from Yucatan, and this near market can be ours as soon as we are able to command it. From replies received to enquiries

in New York and London, on the submission of samples, the markets there are ready to advance rates whenever an enlarged annual output warrants its attention, so favorable are all the expert's reports thereon. Unexpected enquiry also comes from Japan, with the prospect of a market in that direction.

With this assurance of ability to command their market the company this last year concluded negotiations for the lease of an additional tract of 2,000 acres well adapted for sisal growing, with a view of more extensive operations, and the work of its planting is already entered upon.

This pioneer enterprise in a new field of local industry has had the usual drawbacks of all such initial effort in making its way, and all subsequent undertakings will be able to profit by its experiences; and it may not be inappropriate, in passing, to touch upon some of these practical educational points, as viewed by an onlooker.

First: While it is quite true that sisal may be successfully grown on poor and arid lands as has been claimed, it is found to be materially affected by seasons of drought, and is perceptibly responsive to the benefits of soil of some depth. These two points have been demonstrated here and were recognized abroad by Manager Weinrich in his recent visit through the sisal-growing countries.

Second: The theory of "a little farm well tilled" hardly holds good, for experience has proved that concerns of large area with sufficient capital for intelligent development are the most successful, as has been well illustrated by both our sugar and pineapple industries, and the disadvantage of restricted area in sisal is being realized. Hence the necessary extension of its operations by new and improved lands.

Third: The attention given to the hitherto waste fibre from the machine is bringing forward new products for utilization, according to quality. So far this is sorted into three grades, the first of which, while lower than cordage fibre, furnishes an excellent material for upholstering and such like uses that is being

developed. The "medium" also furnishes a second grade article for similar purposes, while the lower or "picked" grade gives a paper-making material of fair quality that has a prospective market when furnishable in quantity sufficient to obtain lower freight rates. Hitherto this has all been waste in the full sense of the term, but with increased production and less expensive means for its treatment, to which attention is being devoted, it is hoped to afford satisfactory returns.

Fourth: The knowledge gained in the experimental period of this industry in the treatment and milling of the fibre has been of value, as are all such experiences, both from the standpoint of economy in manufacture and quality of fibre produced, with the result of gradual improvement of the plant and its working.

Fifth: Time of planting, treatment of plants in nursery and field, and methods of cultivation to procure the best results, as also the very important question of market have all been ascertained, and are valuable points of information to all successive fibre growers that may establish here.

To demonstrate, as the Hawaiian Fibre Co. has done, "that Hawaii can grow sisal fibre equal to the best," so that it is attracting the attention of the world's markets, is a valuable asset to the fibre industry of the Territory and should greatly encourage those who are venturing into the field. The extension of planting area by this pioneer company triple that of what it has already developed shows confidence, and investors should not be backward in extending its capital.

Favorable reports are also gleaned of sisal prospects on Hawaii, both at Pahala, Kau, and Kailua, Kona. At the former place a tract of land unsuited to cane culture was planted by the Hawaiian Agricultural Co. to sisal in 1902 and 1903, embracing 452 acres, which is coming along in good shape. From the trial field first laid out the first sample bales of its fibre have already been shipped, and the main fields will be ready to crop a year or so hence. The McWayne sisal tract of some 500 acres at, or near, Kailua, has so far progressed as to warrant the establishment of the necessary machinery for the treatment and manufacture of its product.

The efforts put forth in this same direction on Maui are reported to be satisfactory, though Molokai's outlook does not appear as promising as was at one time reported. Other parts of the islands, however, are considering the advisability of utilizing waste tracts with the prospect that certain parts of the Island of Lanai may be devoted to sisal culture so soon as the unfortunate litigation which is blocking the development of industry there is overcome.

Altogether the outlook for this new industry is stimulating, and when the various sisal plantations shall have reached the maximum capacity of their annual production, it is encouraging to have the assurance of an improved market in consequence, rather than a tendency to lower its figures, and compared with the New York quotations on the Yucatan and Bahama fibre ranging about seven cents per pound, ours should command nearer ten, was the statement of Eastern fibre experts.

THE WAINIHA ELECTRIC POWER PLANT.

Description of the Hydro-Electric Plant of the Kauai Electric Company and the Electrically Driven Pumps of the McBryde Sugar Company.

(Read before the Hawaiian Engineering Association, October, 1906, meeting.)

BY A. GARTLEY.

IN presenting this paper to the Engineering Association I shall not go into the details of the organization and promotion of the Kauai Electric Company, but will adhere strictly to a description of the technical details.

The object of the promoters in building an electric plant was to generate power from a mountain stream in Wainiha Valley on the northwest side of the Island of Kauai, and to utilize the same in operating pumps at McBryde Sugar Plantation on the south

side of the island. It was estimated that about 2500 horse-power would be required by the McBryde Sugar Company.

Preliminary surveys of the water, power-house site, pole line, ditches, etc., were made in the latter part of 1904. Contracts were placed for conduit, power plant and transmission line in March, 1905, and the plant was completed and formally opened early in August, 1906.

Wainiha Valley is a deep valley which cuts into the heart of Waialeale, a mountain approximately 6,000 feet in height. The valley is about fifteen miles long and receives the under drainage from a large plateau of an elevation of from four to five thousand feet. The Wainiha stream is said to have the most constant flow of any stream on Kauai.

When operations were commenced at Wainiha there were absolutely no facilities for receiving freight, housing the men or transporting the machinery. It was necessary to build a wharf on the beach and connect it with the power-house by a light railroad. Warehouses were built near the wharf to receive the freight, houses were built at the power-house site to accommodate the men and trails were made into the valley for the transportation of stores and material for the tunnels.

WATER CONDUIT.

Water is taken from the bed of the Wainiha stream through the head gates at an elevation of 710 feet and carried through a conduit consisting of tunnels and ditches, there being 32 tunnels and eight connecting ditches having a fall of .2 per 100 feet.

The tunnels are six feet wide, four feet high with an arched rise of two feet and comprise 17,400 feet of the total length of the conduit.

The ditches are five feet bottom, nine feet top and six feet deep and five-foot berm, the slope on the high side of the ditch being $\frac{3}{4}$ to 1. The combined length of the ditches is 5,600 feet.

All tunnels are through solid rock and considerable difficulty was encountered with what is known as "Kanaka" rock, it being

necessary during construction to install power drills on two of these tunnels.

The head gates are just below a bend in the bed of the stream and advantage was taken of the deflection to construct a large overflow. There is a sluice gate immediately below the overflow to take care of sand and debris deposited in the ditch above the screen. A screen grating placed at an angle of $\frac{1}{2}$ to 1 intercepts any floating debris and is placed immediately above the head gates. There are three 3-foot head gates operated with a rising screw stem. It was found necessary above the head gates to throw an arch across the ditch and build a stone-wall about three feet above the level of the top of the ditch to deflect the flood water which is at times two to three feet above the level of the top of the ditch. At several points along the line of the conduit where streams cross the ditches or where the tunnels break out into gulches, aprons have been built over the ditches and cross the tunnel entrances to carry the storm water, provision being made, however, to receive into the conduit the normal flow of water from these various small streams. One large stream, the Maunahena stream, supplies a daily flow into the ditch of from eight to ten million gallons. There are sand traps, spillways and flushing gates at several points along the line of the conduit, the largest and most important spillway being between the last two tunnels.

Water is received at the lower end of the conduit into a fore-bay of substantial size and construction. The conduit ends in a tunnel on the backbone of a ridge and the fore-bay is excavated out of the solid earth, the total depth being 12 feet. The excavation is lined with a concrete lining 18 inches thick on the walls and six inches on the bottom.

There is a 42-inch sluice gate level with the bottom of the fore-bay and, immediately in front of this, and extending entirely across, there is a wall two feet six inches high, the object of which is to act as a baffle to retain the sand which might be precipitated into the fore-bay. This wall also acts as a support for a screen which extends the entire width. This screen is 20 feet long by 11 feet high and is made up of 3-16x3 inch flat iron bolted to-

gether and separated with pipe thimbles $\frac{3}{4}$ inch long. It is placed in the fore-bay at an angle of about $\frac{1}{2}$ to 1 in order that it may be readily cleaned.

In the front of the fore-bay there are three 42-inch outlets, two of which connect with two pipe lines and the third to be connected to a future pipe line. These outlets are closed with rising screw stem wooden gates. Just outside of the fore-bay there is a riser pipe on each pipe line to admit air into the pipe line when the valve is closed.

A spillway 12 feet wide is provided on one side to take care of the rise of water in the fore-bay which might be caused by the inertia of the water should the pipe line be suddenly shut off.

The level of the water at the fore-bay is 655, the level of the center of the pipe line is 648. This depth of immersion, together with the ample screen area, it is believed, will insure a full pipe of water at all times.

PIPE LINE.

Two pipe lines lead from the fore-bay to the power-house immediately below, a distance of 1700 feet.

The first section of pipe is 42 inches, tapering to 34 inches at a distance of 20 feet, the thickness at this point being 3-16". The 34" 3-16 pipe extends for 880 feet where it is reduced to 30 inches, the remainder of the pipe being 300 feet 30-inch diameter $\frac{1}{4}$ inch thick; 280 feet 30-inch diameter 5-16" thick; 220 feet of 30-inch diameter 3-8" thick.

The two pipe lines are covered throughout their entire length and are anchored in the trenches at intervals of 150 to 200 feet. The anchorage consists of an angle iron riveted to the underside of the pipe, this in turn having a piece of steel plate riveted to it, the steel plate bearing against two 35-pound steel rails about six feet long laid crosswise of the ditch and imbedded solidly. This method of anchoring seems to have been very successful. There are three man-holes in the length of each pipe for access to the pipe should stoppage or leakage occur.

There are no air valves or relief valves in this pipe line as only

a complete stoppage of the pipe or a complete stoppage of the water wheel nozzles can throw an excessive strain on the pipe. Should the pipe be suddenly emptied a small riser pipe, referred to previously, would be depended upon to supply air.

POWER HOUSE.

The power-house is a substantial iron building supported on a concrete wall, 64x40 feet and has an L constructed of concrete for the transformer house.

There is a traveling crane of 16 tons capacity, carrying two 8-ton Yale & Towne blocks. This crane travels over the entire length of the power-house and has a capacity sufficient to lift any piece of apparatus.

The transformer house has an alleyway 11 feet wide extending down through the center and on each side of this alleyway there are three entirely enclosed fire-proof cells each containing one transformer. The alleyway has a traveling crane of sufficient capacity to handle the transformers and is used as a storage space for an extra transformer. This house is constructed entirely of concrete with an iron roof. Its floor level is six inches below the level of the main station, to prevent accident from fire should the transformer oil become ignited or boil over.

EQUIPMENT.

The station as at present equipped has two 1200 kilowatt generators direct connected to Pelton water wheels, two 70-kilowatt exciters, a switchboard and seven 500 K. V. A. transformers. Allowance has been made for an additional 1200-kilowatt unit.

HYDRAULIC PLANT.

There are two units of 1200 kilowatts each, duplicates in every respect. Each unit is a two bearing, double wheel unit of the overhung type and consists of two Pelton disc wheels, one pressed on each end of the generator shaft. Upon this shaft the rotor of the generator is mounted between the wheel.

The revolving element is carried in two water cooled, self-oiling bearings. These bearings, the water wheel housing and the generator are carried upon a massive cast iron bed frame rigidly secured with heavy anchor bolts to a massive concrete foundation. The wheel discs are heavy castings carefully balanced and fitted with the necessary number and size of steel buckets to have combined maximum capacity of 2500 H. P. The buckets are cast semi-steel. The shaft is a hollow forged nickel steel shaft 11 inches in diameter at the generator hub and $9\frac{1}{4}$ inches in the bearing. The bearings are $9\frac{1}{4}$ inches in diameter, 30 inches long, ring oiling ball and socket type babbited with a high grade babbiting metal thoroughly peened in and scraped. Each journal barrel is exactly concentric with the machined ball joint and fitted in the concentric machined cast iron ball socket of the pedestal. The shell of each bearing is provided with oil compartments of large capacity and with water cooling compartments through which a constant stream of water is supplied. Oil is carried to the journals with heavy bronze parting rings. This construction insures perfect alignment, the uniform bearing of the shaft and a constant flooding with cool oil.

Water is brought to the wheels through a heavy Y casting bolted to the flanged end of the pipe line (each unit has an independent pipe line). The branches of the Y have attached thereto gate valves of the outside screw yoke, rising stem, Pelton type with nuts and seats of phosphor bronze. They are provided with worm gearing and roller thrust bearings to facilitate operating under pressure. Each gate has a suitable by-pass. There are two water nozzles to each main unit of the needle deflecting type, mounted on cast iron sole plates and provided with forged steel trunion pins working in gun metal bearings. The ball joints are packed with leather rings to prevent leakage when the position of the nozzle is changed. The nozzles are provided with hydraulic counter-balances and are connected through levers and rocker shafts to an automatic governor. A flanged nozzle tip is secured to the end of each nozzle, admitting of renewal. Tips of varying size are furnished from $5\frac{1}{4}$ to $6\frac{1}{4}$ inches in diameter. The quantity of water issuing from each nozzle is controlled by a

bronze needle which centers accurately with the center of the nozzle tip. This bronze needle is mounted on the end of a steel shaft and is operated with a hand wheel from the power-house floor. The needle end is so constructed as to always give a parallel flow of water concentric with the nozzle tip.

To provide for very accurate speed regulation a Lombard type Q, oil actuated governor is connected to the two deflecting nozzles with a set of levers and rocker shafts and the speed is regulated by throwing on and off the full stream of water. The governor itself is belted to the main shaft of the water wheel unit and receives its actuating oil under pressure from a storage oil tank having an air reservoir on top. This oil is kept under pressure by an oil pump operated with an independent water wheel. Each governor has a small motor mounted upon it which is operated from the main switchboard. The speed may be altered within narrow limits with a push button control. Should the governor become inoperative it may be disconnected by throwing a clutch and an auxiliary hand-control device then thrown into mesh enables one operator to control the nozzles.

The exciters are driven with independent water wheels and on these exciters no governors are provided. These wheels are mounted directly on the ends of the generator shafts and are covered with suitable housings. The speed of the Pelton wheels is controlled with rigid needle nozzles operated by hand and suitable gate valves. Water is supplied to these wheels with a six-inch pipe connection from the two main 30-inch pipe lines.

GENERATORS.

The main generators are 1200 kilowatt, 2200 volt, 3-phase, 25 cycle, 375 revolutions per minute, rotating field, engine type machines built by the Westinghouse Electric & Manufacturing Company. The rotating part is a solid steel casting pressed upon the water wheel shaft and carries the field coils. The outside frame carries the armature winding and is of the slotted type. The core is built of laminated steel of high magnetic quality built up and pressed upon a cast iron frame. The coil

coils held in the slots by overhanging teeth of the laminated steel core. The field current is carried to the field coils on the rotating part through cast iron rings. These generators are of extremely good regulation and efficiency and they require but 15% greater current in the fields when operating at 90% power factor than when operating on a non-inductive load. The efficiency at $\frac{1}{2}$ load is 92.75%; at $\frac{3}{4}$ load 94 $\frac{1}{2}$ %; and at full load 95 $\frac{3}{4}$ %. They are arranged so that the frame can be moved parallel to the shaft for access to the winding and field coils.

EXCITERS AND SWITCHBOARD.

There are two 70-K.W. Westinghouse type "S" 125 volt, compound wound, 575 revolutions per minute, exciting generators. These generators have considerable excess capacity for lighting and small power in the machine shop.

The current is controlled from the generators to the transformers through a six-panel blue Vermont marble switchboard.

The switchboard has a double set of bus bars and is so arranged that either bank of transformers can be operated from either generator, or the generators can be run in parallel. Each generator switchboard is provided with ammeters, poly-phase indicating watt meter, direct current field ammeter, field switch and two non-automatic oil circuit breakers for connecting either set of bus bars, also a synchronizing outfit and volt meter receptacle.

The exciter panel has the necessary volt and ammeters, rheostat mountings and switches.

The transformer panels are each provided with one ammeter and two single-throw automatic circuit breakers.

All the wiring from the generators to the switchboard and from the switchboard to the transformers is carried underground in 4-inch vitrified tile conduits.

TRANSFORMERS.

In order to take care of the output of the station and increase the voltage from 2200 volts to 33,000 volts there are two banks of three transformers each, the capacity of each transformer

being 500-kilovolt amperes, with another transformer as a spare. These transformers are known as the Oil Insulated, Water Cooled type, and in addition to the main leads there are auxiliary leads which permit of the use on the low tension side, of 1900, 2000, 2100 volts and on the high tension side of 28,500, 30,000 and 31,500 volts. They are so arranged as to be connected in groups of three, from delta on the high tension voltage to delta on the low tension voltage.

The transformer windings are flat coils, separated from each other by heavy insulation, wound upon a laminated core. The core has sufficient oil ducts through it to permit of efficient cooling. The transformer windings and core are enclosed in a boiler steel case and surrounded with oil. The oil is cooled with two sets of cooling coils made of seamless brass tubing spiral in form. Each transformer is mounted in a compartment by itself and a pipe is carried from the transformer into the tail race to drain off the oil should the transformer take fire or the oil boil over. The valve stem of the valve controlling this oil is brought out into the alleyway to insure safe operation.

The cooling water for the transformers is taken from the main pipe line into a tank placed at a slight elevation above the powerhouse and is then piped into the main generator room. It is here controlled by a set of valves. Independent connections are taken to each transformer and the overflow from each transformer is brought back to the generating room and discharged into an open funnel, thus enabling the operator to see that each transformer is getting the proper supply of circulating water. Thermometers are fitted into each transformer and have an electric connection so arranged as to make contact and ring a bell should the temperature of the transformer rise to a dangerous point.

HIGH TENSION SWITCHES AND ARRESTERS.

After the current is stepped up to 33,000 volts at the powerhouse it leaves the transformer house, passing through two sets of high tension switches. This arrangement is made in that the high tension current may be cut off from each

transformers. These two circuits are then united and carried to the main transmission line. Horn type lightning arresters with eight-foot horns and three-inch gap are tapped off the main line and the dead legs are carried to earth through a water resistance.

A set of choke coils consisting of 24 turns of No. 0 bare copper wire coiled in the shape of a spiral upon a 10-inch circle with 1-inch gap, are interposed in the main line between the lightning arresters and the main switches.

POLE LINE.

The line then extends through Hanalei Valley to the McBryde Sugar Company, passing over mountain ridges and through deep valleys for a distance of 35 miles.

The poles are 30-foot round cedar poles with 10-inch butts and 7-inch tops, buried six feet in the ground. The butts are protected by giving them two coats of crude oil before erection and again coating them at the ground line after erection.

The wires are carried in a triangle five feet apart and no transposition is made. The top pin is mounted on the top of the pole and the pole reinforced with an iron band $1\frac{1}{2} \times 1\frac{1}{4} \times 6''$ in diameter. Two other wires are carried on crossarms six feet long, 5"x" in cross section and slightly rounded on top. These crossarms are bolted directly to the pole with a $\frac{3}{4}''$ bolt and braced with $1\frac{1}{2} \times 3 \times 16 \times 30''$ braces. Where excessive strain is placed upon these crossarms, a double construction is used, that is two crossarms mounted opposite each other on each pole and two blocks are bolted to the top of the pole. The insulators are No. 316 Locke insulators, 11 inches in diameter by 11 inches high, the larger part of them being porcelain throughout; some, however, are porcelain tops with glass petticoats.

At some points where sharp turns were made in the line and where the spans are 200 feet or more two poles are used instead of one, the poles being separated from each other by about eight feet in a line at right angles to the pole line. Two 14' crossarms are placed on the poles and the wires carried on the same level at a wider separation.

The pins used on the line are of wood made from specially

selected eucalyptus stock. The eucalyptus is cut into 3-inch squares and air dried for two years before being used and then turned up and treated with a special paraffine compound. They are 14 inches high, have a 5-inch shank, two inches in diameter and are driven securely into the tops of the poles and into the crossarms. Where long spans are made and at bad corners a special pin of wood, iron and porcelain is used, the pin being a $\frac{3}{4}$ -inch bolt with a special head and a thread for the insulator of wood. The base of the pin is of porcelain.

WIRE.

The main line wire is seven stranded aluminum cable of 103,850 circular mills, equivalent in conductivity to No. 2 B. & S. gauge copper wire. The wire is secured to the top of the insulator with special soft drawn No. 3 B. & S. solid aluminum tie wire, a special sort of fastening being used.

The wire was received in lengths of 1500 to 3000 feet and splices were made by the use of a special aluminum sleeve. The ends of the wire were inserted from opposite directions through the sleeve, and with the aid of special tools the sleeve was then given three turns, thus twisting the wires together. The seven strands extending from each end of the sleeve were then expended neatly around the wire itself.

The use of aluminum wire on this line has been brought into question by some, but the consensus of opinion of those who have used aluminum wire seems to be, that due to improved methods of manufacture the product now furnished is reliable and that no trouble is experienced when aluminum wire is used due to breaking down or crystallization. The cost of stringing it is less on account of its weight, the joints now used are entirely satisfactory without the use of solder, and there is no appreciable disintegration of aluminum wire from ordinary atmospheric influence. Under usual conditions even on the sea coast aluminum is a durable metal as it protects itself with a thin impervious coating of oxide and in a test made on the Pacific coast six years' exposure near the sea coast shows a deterioration of less than 4-10 of one per cent.

The weight of aluminum wire is only 47% of the weight of copper of the same length and resistance. Conductively is from 61 to 63 per cent. that of pure copper. Aluminum is a highly electropositive metal and it is therefore necessary to use aluminum ties and where other metal than aluminum is joined on to it great care should be taken to protect the joint from atmospheric influences with tape or insulation, otherwise the aluminum wire will be damaged by galvanic action.

The spans used on this line are mainly 130 to 140 feet, but in the mountain districts there are several spans over 300 feet and a maximum span of 470 feet.

The expansion of aluminum is nearly double that of copper, but as the strength is not as great it is necessary to give an aluminum line a definite amount of sag corresponding to the temperature observed at the time of erection. A set of curves were drawn and instructions issued to linemen to insure proper erection.

TELEPHONE.

On the main line poles there are two No. 12 copper telephone wires carried on deep groove double petticoat insulators supported on brackets, the upper wire is four feet from the crossarm and the lower wire on the opposite side of the pole five feet. Transposition is made every tenth pole. One telephone is installed on each end of the line in a specially built booth, the operator standing on a platform insulated from the ground with high tension insulators. Two 1000-volt transformers are connected in series between the telephone wires and the center connection between these transformers is thoroughly grounded, thus freeing the line of all static. The operator experiences no difficulty in communicating over this line.

The construction of the pole line presented many obstacles and the preliminary surveys were made with great difficulty. The line passes over high ridges between the valleys of Wainiha and Lumahai and between Lumahai and Waikoko, then across and through rice fields to Hanalei valley; it is then carried up a ridge to an extensive table land back of Kalihiwai to the mountain

divide between Kalihiwai and Wailua, this section being through a densely wooded country swampy under foot. It then passes along the divide and down the ridge to Wailua and along the base of the mountain range to a gap between Haiku and Lawai. It is then carried over the plantation lands and across several gulches to Hanapepe.

Trails were cut, and roads and bridges built to enable the contractors to take in materials and these were permanent in character to enable the patrolmen on the line to keep the line constantly patrolled. Where streams were crossed a sort of cable suspension was erected carrying a platform so arranged that patrolmen might cross.

HANAPEPE RECEIVING STATION.

At the McBryde end of the line, at what is known as No. 2 pumping station, is built the receiving station of the high tension line. There is one set of high tension switches, choke coils and lightning arresters similar to those at the power house. Four cells built of concrete contain the receiving transformers. These transformers are connected in a bank of three delta to delta with one transformer as a spare, the current being stepped down from 33,000 to 2200 volts. These transformers are Oil Insulated, Water Cooled type of 875 K. V. A. capacity. The low voltage current is carried to a set of bus bars in an adjoining room to a switchboard which controls the distribution on the McBryde plantation.

PUMPING MACHINERY.

At the present time there are installed and in operation on this service four large pumping units consisting of:

Two 500 H. P. motors, each connected to a two-stage high-lift centrifugal pump of 5,000,000 U. S. gallons daily capacity against a head of 341 feet operating at 735 revolutions per minute.

One 500 H. P. motor direct connected to a two-stage high-lift centrifugal pump of 6,500,000 U. S. gallons daily capacity against a head of 260 feet operating at 735 revolutions per minute.

One 150 H. P. motor direct connected to a high-lift centrifugal

pump of 3,500,000 U. S. gallons daily capacity against a head of 168 feet.

The three first mentioned pumps were built by the Buffalo Steam Pump Works at Buffalo, New York, and the last by the Byron Jackson Machine Works at San Francisco, Cal.

All of the motors were supplied by the Westinghouse Electric & Manufacturing Company.

Current is also taken to the mill, a distance of three miles from the receiving station, and used there on small motors and for lighting.

PUMP EFFICIENCIES.

The pumps which are used on McBryde are of the high-lift turbine type. A complete description of the pumping apparatus built by the Buffalo Steam Pump Company appeared in the Louisiana Planter on September 8th. There is also an article in the July number of the Engineering Magazine which covers several makes of this type of pump, the McBryde pumps being included. * * *

I do not pretend to be an authority on this class of machinery, but from every indication these pumps promise to give extremely satisfactory results. All the parts are rotating and without valves, the runners are both mechanically and hydraulically balanced and it is a safe prediction that the absence of valves and reciprocating parts will result in extremely small repair bills.

These particular pumps were tested carefully at the works of the pump maker where electric current in sufficient amount and of the correct number of alternations was readily obtainable. The water was measured and the input of electric current to the motor was indicated by meters, the motors were tested for efficiency at the works of the manufacturer before shipment and rarely has an opportunity been presented for determining with equal accuracy the efficiency of any pumping machinery.

* * * The efficiency of the pump remains practically stationery between two-thirds of the capacity when pumping against a head of 325 feet to its full capacity when pumping against a head of 260 feet, namely 76 per cent. At a point about

seven-eighths of its capacity it shows an efficiency of 77 per cent. This I feel will compare very favorably with a reciprocating pump driven with a motor and belt if we consider the losses due to the belting, counter shafting, the many unbalanced parts, slip in the valves and cylinders and friction in the water cylinder packing.

I am not familiar with efficiencies obtained on reciprocating pumps throughout the islands, but I have a firm conviction that there are many of them not giving the efficiencies shown by this high-lift turbine unit.

I have often been asked what efficiencies applied in an electric plant throughout the entire plant. This efficiency will vary widely, depending upon the construction and the class of apparatus installed. The electric and hydraulic apparatus in the plant of the Kauai Electric Company is of as high efficiency as it is possible to obtain at the present time.

The entire electric machinery was furnished by the Westinghouse Electric & Manufacturing Company and the hydraulic apparatus by the Pelton Water Wheel Company. The efficiencies applying here may therefore be cited.

The guaranteed efficiency of the water wheel is 80 per cent., but this efficiency probably reaches 82 or 83 per cent. when operating under its most economical load with a full stream on the buckets. The efficiencies of the electric apparatus are as follows:

Generator, 95.75 per cent.; step-up transformers, 97½ per cent.; line, 92 per cent.; step-down transformers, 97½ per cent.; 500 H. P. motors, 92 per cent.

Taking these efficiencies into account the amount of power which can actually be delivered to the motor shaft at McBryde Sugar Company, 35 miles away, is 80 per cent. of the generator output, 77 per cent. of the power on the water wheel shaft and 61 per cent. of the theoretical power in the water. Accepting an efficiency of 76 per cent. for the pump the total water which can be delivered will be 46 per cent. of the actual water flowing into the pipe line at Wainiha.

From the description of this plant the layman may receive the impression that the entire plant is very complicated. The con-

trary is the case. The effort has been in making this installation to have all the apparatus and equipment as strong and as suitable for continuous and hard operation as possible. The station may be operated by one man on watch and the pumping equipment is far simpler than the station equipment.

The plant has now been in operation over a year without a breakdown of any kind. This augurs well for its capability in all parts to stand hard and continuous use.

NEW IRRIGATION WORKS.

The New Waihee Canal.

IN June last was completed the new Waihee canal, on Maui; water being turned in on May 15th, in the presence of officials of the Wailuku Sugar Co., visiting Congressmen and others. This new water course for the Waihee, Wailuku and Waikapu cane fields has its origin just below the Aliele Falls, two and a half miles up the Waihee valley, at an elevation of nearly 650 feet above sea level, and in its course of 10.62 miles twenty-two tunnels have been pierced, varying from 155 to 2,246 feet in length; thirty-nine flumes of 2,764 feet in length; pipe lines 1,253 feet, and open ditch of 35,549 feet, or 6.73 miles in length, have been constructed.

The dimensions of the tunnels are: Center height, 6.5 feet; sides, 4 feet; bottom width, 5.5 feet, and width at spring of the arch, 6.5 feet. All the tunnel cutting was done by Japanese. The formation in the main tunnels was principally lava rock. In that of tunnel No. 2, of 2,446 feet—the longest in the series—very hard close-grained rock was met with, requiring eighteen months for its penetration and completion. Compressed air and percussion drills were used in this and several other tunnels to furnish power and, incidentally, air.

This new supply source is some 4,600 feet mauka of, and 225 feet above the old Waihee ditch. The cement lined water-way

from the dam and head gates is located along the south bank of the Waihee stream, well above the flood line. Passing through its first tunnel the conduit extends some 2,000 feet to the next tunnel, thence continuing, still tunneling the spurs and ridges forming the foothills of the high mountain range of West Maui, spanning the gulches by flumes and coursing by and through cane fields by open ditch to the north bank of Iao valley just back of the town of Wailuku; thence by inverted syphon across Iao valley, then through cane fields to the Waikapu valley in open ditch where by two final tunnel cuttings under the Waikapu stream it is conveyed to new lands of Waikapu and Puuhele common, where several new reservoirs are located for conservation and distribution.

The steel pipe line crossing Iao valley is 1,253 feet in length and three feet inside diameter, conveying the water under the bed of Iao stream, and delivering it into a cement basin thirteen feet in diameter, thence through a tunnel to a permanent weir where the flow of the canal can be accurately measured at all times. This additional water supply not only insures a better irrigation system to existing fields by or through which it courses, but will bring under cultivation new areas of considerable extent.

The capacity of the conduit is 45,000,000 gallons in twenty-four hours, or 69.81 cubic feet per second after due allowance for seepage and evaporation. Its cost is placed at about \$160,000, which is borne between the Wailuku and the Hawaiian Commercial Sugar Companies in the proportion of 7/12 to the former and 5/12 to the latter.

The construction of the canal was the result of an exchange of land and water rights between these two corporations in settlement of their respective rights to the waters of the Iao valley, which had been in litigation for years past. By this mutual exchange the Wailuku Sugar Company acquires a new tract of desirable cane land, and it will enable both plantations to perfect their system of irrigation, adding materially to the value of their estates.

Chief Engineer Jas. T. Taylor was the constructing engineer throughout this work, locating, designing and completing the same.

THE KEKAHA DITCH, KAUAI.

Another link in the chain of important irrigation works constructed in these islands for the better development of cane culture is that of the Kekaha-Waimea Ditch, on the Island of Kauai, for bringing out the water of the Waimea stream onto the lands of the Kekaha Sugar Co., which work was brought to completion this past summer at a cost of \$275,000.

From an account by its constructing engineer, J. S. Molony, actual survey for the ditch was entered upon about the middle of April, 1906; contracts were let and construction work began two weeks later.

This ditch has its source at an elevation of 550 feet on the Waimea branch of the river, eight miles from the sea. The intake is by means of a tunnel which enters a deep pool, below the surface; and the water is admitted through two grated openings, each five feet by six feet; no dam is required. Passing through a series of tunnels inside vertical palis 600 feet high, then by ditch through fields of loose rocks of great size, or by raised ditch fittings on to the ground, the water is led for four and a half miles to the edge of a plateau above the river. At this point it crosses the Waimea valley by means of an inverted syphon of steel pipe of 48-inch and 42-inch diameter and 2190 feet long, and delivers into tunnels 8, 9 and 10—350 feet above the Waimea flume.

Emerging from here, the ditch traverses gently sloping ground, passes through tunnels 11 and 12, and reaching the open ground above the village of Waimea, it bends to the west and heads for Kekaha. Here the country is much broken by a series of rocky gulches, one after another; tunnels 13, 14 and 15, and two inverted syphons of wooden stave pipe, each 700 feet long and 40 inches diameter, are on this section. This upper ditch is 16 miles long and ends at Waiawa gulch.

The tunnels are eight feet wide and six feet high; they have an aggregate length of 8,660 feet and were driven, for the most

part, through very hard rock; the ditch has a capacity of 55,000,000 gallons per day above the syphon across the Waimea valley and 45,000,000 gallons below; the size of the former being nine feet wide at the bottom and four feet six inches deep; and of the latter eight feet and four feet three inches. The surplus water will be turned back into the river from the syphon; yielding 750 horse-power without other expense than the cost of the machinery, as well as supplying the needs of the taro and rice growers lower down the valley.

No flumes are used, except for a few gulch crossings. At Waiawa the water is dropped 280 feet to a lower ditch, nine miles long, that will convey it to Pulihaie—the end of the plantation—where the palis shut off the road at the Barking Sands.

The drop at Waiawa can be utilized for generating electric power for the plantation.

In the mauka section there was some heavy work necessitating considerable masonry and concrete; while makai the ditch was, for the most part, cut through solid rock with the floor and sides cemented afterward.

The water is now flowing to the cane fields through sixteen miles of ditch.

About 600 men were employed; the tunnelmen, masons and mechanics were Japanese; while Koreans, after experience in the use of tools and powder, were found better able to withstand the climate makai.

The features of the country presented great difficulty in the construction; yet, as no part of the ditch was more than ten miles from the plantation office, much assistance was given the ditch by the Kekaha Sugar Co.; and this, notwithstanding the heavy rains and freshets of the past winter and other setbacks, has largely contributed to the early completion of the work, water being admitted at the intake July 15, 1907, fourteen and a half months from the start.

STORIED NUUANU.

BY ARTHUR JOHNSTONE.

Nuuanu Valley is romantic ground!
Here every knoll and dingle hath its tale,
Woven from legends stark of lonely swale
And Pali steep! Aye, long ago, to sound
Of savage warfare waged by Chiefs renowned,
Th' historic Vale was scarred with bloody trail.
E'en now the bent ear hears the wild death-wail
Of warriors, in the winds which still rebound
The cliffs along; or, in the depths the eye
Doth catch the twinkling of spry Epas' feet
Where, 'neath the trailing clouds which not half hide
The tropic moon, they dance in circles nigh
To sound of falling waters—requiem meet,
Where mouldering heroes dim for aye abide!

MY friend, the Antiquary, is responsible for that which follows. It was in this wise: I made a casual call on him lately, and found him as usual to the elbows i' the midst o' a pile of historical and legendary notes and clippings of the dim and distant past. During the half hour's delightful conversation which followed, I inadvertently mentioned that I was getting some notes about the romantic Vale of Nuuanu in contemplation of the art preservative. This proved more than unwise on my part, for the Antiquary boldly thrust his hand into a nigh nook and at once placed in mine a sheaf of long-since-gathered jottings on the mythical, traditional, and historical lore of this beautiful and romantic valley.

Out of these delightful gleanings of the past I have brought together in briefest mention a few of the forgotten facts which will appeal directly to the wayfarer of today, or perhaps shall awaken memory in some of our older islandfolk to an end that the present record may be supplemented. At present, owing to the space limit, it becomes necessary that the romantic side of the "sequestered vale" must await some more fitting occasion; yet even here it is impossible to pass without mention of the name of Charles Warren Stoddard, or "Charlie Stoddard," as he was familiarly called by old-timers in the seventies and early eighties,

since when his name has become permanently enwrought with the romance of the valley.

In fact, Stoddard once dwelt just back of the Nuuanu Cemetery, on the Waikiki side of the valley road, and has left us a delightful literary pastel thereof under title of, "My Late Widow," in that quaint volume which he has named "The Island of Tranquil Delights"—an idyllic book as thoroughly realistic as it is Stoddardesque. Well do I remember one of the mental notes which he made on the Nuuanu Valley during a conversation that occurred nearly a quarter of a century ago. Some one had said (we were several newspapermen casually met) that stories were difficult to find in the islands in spite of the favorable conditions. Thereat Stoddard slowly raised his hands and eyes—a peculiar trick of his—and exclaimed in his usual drawl: "Good 'stuff' hard to find here! I'll venture to say that if the romance of Nuuanu Valley were written up as it should be, you fellows would be able to fill a moderate-sized library by that you were through."

And Stoddard was right, for the Vale of Nuuanu abounds with memories and traditions of the past, which, by taking but a little pains, shall deck the structure of many a quaint tale of historical reminiscence. In the old days, before and since the memorable Battle of Nuuanu, when Kamehameha routed the forces of Kalanikupule and drove the remnant of the hosts of Oahu pellmell over the sheer pali to final destruction, the valley was a veritable garden, glistening with verdure and teeming with fat. On either side of the Vale the native water-courses, taken from the two streams which flow so uselessly today, nourished innumerable taro-patches that filled the floor of the valley, like the inlaying of a continuous mosaic of plenty. Throughout its length the valley was dotted with comfortable grass houses and sustained as many families as there were cultivated acres.

What havoc must the bloody battle of that stern-browed conqueror have made here! It is generally believed that it was just a little above the Queen Emma place (at present occupied by Mr. James G. Spencer), that is to be located the decisive point of the battle; for it was there a well-directed shot from John Young's cannon brought death to the restless and ambitious Kaiana, and

scattered the forces of Oahu, some to the hills and valleys beyond, and drove the rest to a swift destruction over the famous pali, as mentioned. Then came the sorrowful celebration of that decisive victory in which the body of Kaiana, with those of the other slain chiefs of Oahu, was sacrificed in the pomp of savagery at the Leahi heiau, or temple.

Around the spot where John Young planted his decisive cannon for the victorious Kamehameha, cluster several less bloody and more blessed historic localities, when viewed in the light of peaceful economics; for just below this famous battle point were the ground of the old Royal Hawaiian Agricultural Society, which, as the record shows, flourished through the fifties and well up to the year 1865. But even after the organization had passed its period of activity, its beneficial influence was felt as the original nursery of our infant industries which have since done so much to sustain and beautify the islands. An instance of the society's practical work is to be drawn from the several years when it was under the management of Mr. H. Holstein, to whose faithful services and wide experiments in planting the islands are largely indebted for the present extent and success of rice culture. Since then, in truth and fact, the industry has proved to be a profitable as well as a provident venture.

On the opposite side of the highway, on the premises occupied by Hon. John A. Cummins, was located the old Ice Works, a point of much economic interest in its day (unpretentious as the works were) to the tropical thirst which held in thrall the commercial side of Oahu, and especially the Capital City of Honolulu, where kings and commons quaffed alike, and often. Nay, I have a dim recollection of having seen two decades gone Wilder's black, iron-bound ice chests on the local steamers between islands, which will account for the cooling cups not infrequently enjoyed in plantation porch and wayside hostel throughout the group. But the old ice works were noted in another degree. They were famous for their pigeon cotes, which, in that day, supplied the royal larder and many a private board beside; until between cooled drinks and Epicurean squabs, an ample host had been found to arise and cry blessings on the rusty old ice works of Nuuanu.

Just opposite Queen Emma's place was the old Makee homestead, surrounded by its unequaled rose garden, which, the old-timer is fain to declare, outrivaled aught that may be read or imagined, by the dreamers of today, of the rose gardens of Persia. But suddenly this paradise of the valley vanished—destroyed by sacrilegious hands—after the Makees removed to Maui Island and established the "Rose Ranch" on the mountain slope at Ulupalakua, where even at this late day may be seen some of the horticultural efforts of a half century since. Twenty years ago, during its decadence, I spent a few brief hours at the "Rose Ranch," but even in its ruins I marvelled at its departed splendors and tried to imagine what had been its Halcyonian days and delights—what it once must have been when tenanted by gay throngs and supplied with its luxurious table. It was not, however, until several years after that I fell across Charlie Stoddard's curious fragment called, "Plantation Days," which fulfilled my daydream by giving a detailed and delightfully characteristic account of that earthly paradise hid in the mountain's warm breast.

At Waolani, or the Rooke Valley, abreast of which now stands the new Country Club's building, is to be located the traditional home of the Eepas, a tribe of elfishfolk who were wont to play all sorts of pranks on all conditions of people; but, 'tis said, to meet one of these little fellows while wayfaring or sightseeing was deemed by the simplefolk of the valley to be an omen of misfortune. There, also, was located the workshop of the familiar Menehunes, or Brownies, and it was at Waolani that these little people built Kekupua's canoe, which, as the published legends inform us, was left stranded when daylight drove them from their task of hauling it to the shore. Another point of historic interest will be found at or near the entrance to Waolani, where is placed the site of the first temple, or heiau, of Oahu. The building of this ancient temple is credited to Wakea and his time, and it seems that between the elves and wizards of the neighborhood there was established, as so many watch towers in connection therewith, a chain of some half a dozen heiaus which topped the ridges between the Nuuanu and Kalihi valleys. But these things have flitted into the dusk of yesterdays, and shall not return as

long as the modern sportsman chases his golf ball over the once sacred demesne of Fairyland, and its confines are made hideous by the agonizing acoustic of the modern automobile.

Near the pali lies Luakaha and its interesting neighborhood. For many years it has been the summer resort of the Athertons and Cookes, whose natural generosity has enabled many to share its hospitality and luxurious comforts. But Luakaha is said to have always been famous for its mercantile associations, and that it has held almost continuously a like attraction for our merchant princes, even from the time of Pelly of Hudson Bay Company fame.

Just above Luakaha are the ruins of the summer residence of Queen Kalama, consort of Kamehameha III. The ruin at present consists of four delapidated walls of stone, which, it is said, certain ill informed persons delight to point out to strangers as the ruins of an old temple.

In this locality was spread the largest royal feast ever given in the Islands—at least in modern times—on the occasion of the celebration of the Restoration of the Islands from their premature seizure by Lord George Paulet in February, 1843. In reading over the too brief descriptions which remain to us of this great international event, one is struck with the fact that probably since the days of the Earls of Warwick there is hardly to be found a suitable comparison for the great island feast of Kamehameha III.

Our story of the English feast given at Kenilworth Castle by Robert Dudley

"To good Queen Bess of England,
Proud daughter of the realm,"

is quite reliable, for hath not Master Robert Laneham, whom Sir Walter Scott for some unaccountable reason called "as great a coxcomb as ever blotted paper"—yet a very accurate chronicler withal—told us how it cost the generous Earl of Leicester £1,000 a day for more than a fortnight for her entertainment? Nay, we can well imagine the extent and luxuriance of the Earl of Leicester's civility to Queen Elizabeth when we read Master Lane-

ham's quaint confession that it took 340 hogsheads of good English Ale to wash down the solid food of that continual revelry.

But for a semi-Savage affair—barely on the edge of civilization—all must agree that hardly in extent, though confined to a shorter time, the great feast of Kamehameha III falls not far behind that of the lavish and patriotic Earl of Leicester, as the following brief note will show: Provision was made for 12,000 guests, and it is estimated that as many as 10,000 sat at the entertainment in July, 1843. The procession which accompanied the royal party and cabinet to the feasting place at Luakaha, contained, beside the military, a thousand horsewomen, riding five abreast, all dressed very like, wearing palm leaf hats and Spanish ponchos, gay with ribbons and floral wreaths. These were followed by 2,500 horsemen, probably as gay and rollicking an army on peaceful mission bent as ever wended through the historic Nuuanu Valley.

I am able to give a comparatively accurate list of the provisions collected for this period of feasting. There were brought to this extensive gastronomic altar "271 hogs, 482 large calabashes of poi, 602 chickens, three whole oxen, two barrels of salt pork, two barrels of biscuit, 3,125 salt fish, 1,820 fresh fish, twelve barrels of luau and cabbage, four barrels onions, eighty bunches of bananas, fifty-five pineapples, ten barrels of potatoes, fifty-five ducks, eighty-two turkeys, 2,245 cocoanuts, 4,000 heads of taro, 180 squid, besides oranges, limes, grapes and various fruits."

This great feast and celebration was accompanied by a genuine Hawaiian program, which included an exhibition of ancient games, followed by recitals and mele and olis, and in the evening, or probably far in the night, concluded with a "hula concert" to the smiting of drum and calabash, which in this modest age had better be imagined than described. Yet dropping out the offensive and adding here and there touches of barbaric grandeur, and setting the whole against the towering scenic background of the Nuuanu Pali, I doubt not that this last of our great island feasts shall compare favorably with the splendors which Robert Dudley prepared England's Queen in days hardly less rude, from our modern point of view.

But the savage feast is over, yet let us quaff one more cup of romantic wine ere we leave the historic vale for the present. The Nuuanu Pali now rises just before us and if we reach its edge we too, like thousands before, shall see the magic view which Nature forever hides or changes as under a veil. No two have ever seen that wonderful vision of land and sea with the same eyes, since it hourly varies, often betwixt sunup and sundown. But, once seen, all shall carry through life their first impression of their view from the famous pali. Mine was written many years ago for another occasion, and it is the guise under which the scene always re-appears whenever my eyes are closed in reverie:

“As we wended up the valley after an early breakfast, quite an hour before the sun had driven the vapors from the pass, I feared that we soon must be wet, so threatening seemed the low-hanging clouds which continually dropt moisture along the hill-sides on either hand; but Maile, my guide, told me we had naught to fear, and so it was; for ere we reached the pali, or precipice, which divides the Island at the center, we were riding in the sunshine, through occasional light and fairy-like showers to be sure that fell from a cloudless sky, but drying almost before they touched the earth.

“It was a glorious ride, for by this time the lazy grey-white clouds were climbing the Koolau sky and peeping over the heights above us. When we reached the top the trades were just beginning their daily rush through the wedge-like gorge, and as we rode under the rolling cloud-masses that seemed almost within reach, the island panorama opened before us, and, ere we descended into the gardens of the blest, stretching away at our feet for miles on either side, kind Nature allowed us one of those scenic effects which none but the earliest of travelers may see. Far beyond the fertile plain, but rapidly nearing it, came racing in from the sea one of those grey, phantastic rain-clouds borne on the air currents which circle the long oval bay; and as the sea-cloud came on it partook of Portean changes and always seemed emerging from a halo of mist—always was zoned by a girdle of rainbows which at times seemed to outdazzle the sun. For a

moment it hovered near the shore-line, when suddenly plunging earthward, it swept over green fields and cosey hamlets, following the great cup of the mountains, and dropping the blessed rain in long lace-like tendrils on the paradise beneath."

Reader, this is but a wee bit of the fact and fancy born of the Vale of Nuuanu, and much more remains to be written of the storied and romantic valley.

FEDERAL EXPERIMENT STATION REPORTS.

THE various reports issued from time to time upon the work of the Hawaii Agricultural Experiment Station, indicates the thoroughness of investigation by the Special Agent in charge, Jared G. Smith, and his staff, on subjects calculated to render material aid in diversifying agriculture in these islands. This paternal labor for the benefit of the Territory in general, and the farmer in particular, has proven the feasibility of tobacco culture of superior quality; the profitable outlook for rubber; besides seeking to extend the varieties of tropic fruits having better shipping qualities, and demonstrating the possibilities of distant markets for our products.

The Annual Report of this Station for 1906—its sixth—issued September, 1907, from the Department of Agriculture at Washington, besides covering the year's work in the lines indicated above, contains report on several other tests to revive past industries and improve existing ones, as also an exhaustive article on "Organic Nitrogen in Hawaiian Soils," by E. C. Shorey, Chemist, and one on "The Economic Seaweeds of Hawaii and their Food Value," by Minnie Reed, Science Teacher, Kamehameha Training Schools, which is the most complete paper yet published on the subject.

In the Hawaiian Annual for 1902 was given Miss Josephine F. Tilden's "Collection of Algæ from the Hawaiian Islands," covering the list of 100 varieties, so far as classified, the result of a

summer vacation study of two painstaking investigators. The present paper embraces, besides the list of edible algæ of 71 varieties, methods of gathering; serving, and preserving limus; popular and abundant kinds; methods of cultivation; value and amount sold in market; value imported by orientals; limus for medicine and incantations; analysis and comparative food value, with other valuable observations and notes, which give it interest and value.

RETROSPECT FOR 1907.

MAWAII has moved on in the even tenor of her way this past year, with little internal commotion or external mishap, as last year, affecting us. We are certainly a favored land. Following a winter season of copious rains the generous distribution of summer showers throughout the group has greatly benefitted both agricultural and pastoral pursuits, and with the exception of occasional "off days" the weather has been delightful. There has been less friction apparent in public questions that have arisen; business has continued with less changes than usual; the legislature held a short session for the fair and expeditious transaction of its business; the public health has been safeguarded from threats without and within; a change in the executive transpired with a spirit of satisfaction to all political parties that is remarkable; we have been honored by the visit of a large Congressional party of investigation as to the needs of the Territory, and enjoyed the welcome call of the "Big Four" cruisers, en route from the Orient to San Francisco. These and other subjects in the events of the year are detailed as follows:

THE LEGISLATURE.

The new legislature convened in February, as usual, the Senate organizing with Hon. F. Faxton Bishop as President, and the Representatives with Hon. H. L. Holstein as Speaker, and conducted itself with commendable spirit and (for the first time in its

history) completed its business without extension of its session of sixty days. A number of good laws were enacted and some wise vetoes sustained, and it is to be regretted like wisdom was not exercised throughout instead of pandering to office-seeker's clamor by the passing of a municipal act for the City of Honolulu toward the end of the session, and allowing itself to be stampeded against law, order and commonsense, in the interest of a self-styled healer.

A far-reaching beneficent act because of the possibilities it opens up, is the provision made for the establishment of an Agricultural College for the training of our youth in scientific lines, and thus aid the movement of intelligent, diversified industries in these islands, and in keeping with plans of the Department of Agriculture at Washington. The Governor appointed as its Regents: H. E. Cooper, W. G. Smith A. Gartley, M. Campbell and C. F. Eckart. J. E. Roadhouse of the Technical Institute, of San Luis Obispo, Cal., has been chosen as its first Dean.

The Nuuanu dam troubles were investigated by a special committee, as is mentioned elsewhere, and also the exchange sale of Government lands on Lanai, both of which made full reports.

At the close of the session its expenditures showed \$14,737.37 by the Senate and \$29,587.76 by the House, which, with the estimated additional expense for printing and Journal of \$10,000, would total \$54,325.13, toward which the federal appropriation of \$30,000 for this object was applied.

For the session's work there were 401 signed bills by the Governor, and 31 vetoed bills, of which 14 were sustained. Thirteen other bills met with "pocket veto."

OFFICIAL CHANGES.

Close upon the termination of the Legislature it became generally known that Governor Carter contemplated resigning before his term of office expired, and much speculation was indulged in as to his successor. In due time announcement was made that Chief Justice Walter F. Frear was the President's choice for the responsible position, which choice met with general commendation throughout the Territory, irrespective of party. August 15th

was the date selected by the retiring governor to transfer the cares of State and preparations for the inaugural ceremonies were made accordingly, which took place in the "throne room" of the Executive building on the date above mentioned, in the presence of Territorial and Federal officials, leading citizens and public general.

Following the retiring address of Governor Carter the newly appointed Secretary, E. A. Mott-Smith, read the commission of governor issued by President Roosevelt to Walter F. Frear, whereupon Chief Justice Hartwell administered the oath of office. The new governor then delivered his inaugural address (given in pages 79-89 in this issue), after which a general reception was held and the various officials, prominent citizens and others, took advantage of the opportunity for congratulations befitting the occasion.

The above change of the Executive has necessitated the following changes in the Judiciary and Cabinet:

Alfred S. Hartwell, Chief Justice, vice W. F. Frear, promoted to the governorship.

Sydney M. Ballou, Second Associate Justice, vice A. A. Wilder, promoted.

Ernest A. Mott-Smith, Secretary of the Territory, vice A. L. C. Atkinson, resigned.

Chas. R. Hemenway, Attorney General, vice E. C. Peters, resigned.

Marston Campbell, Superintendent of Public Works, vice C. S. Holloway, resigned.

CONGRESSIONAL PARTY VISIT.

By invitation of the Territory and appropriation of \$15,000 for its expense, a party of Senators and Congressmen, numbering some sixty persons, visited the islands in May, spending three profitable weeks visiting the different islands in their inquiries on various questions affecting our interests. The agricultural conditions and diversified industry possibilities were investigated; our land system considered; immigration and labor problem looked into; the unjust working of the coastwise law in its application

here; our defenseless position, and breakwater and lighthouse needs demonstrated. A belated party came a few weeks later, spending a like period in touring the islands and investigating its needs and possibilities. The advancement of Hawaii and the progress of her schools was a revelation to the majority of these visiting statesmen. It was an enjoyed educational season to them, as all admitted, and will enable Congress to deal understandingly with Hawaiian questions that may come before it from time to time.

LOS ANGELES EXCURSIONISTS.

The Los Angeles Chamber of Commerce excursion party comprising 113 men and 133 women, arrived in March, per chartered steamer Ohio, for the round trip and a short stay at Hilo and Honolulu. They first visited Hilo, to enjoy its exceptional scenery and volcano experiences, where a big luau was given in their honor. On reaching this city they were as cordially entertained and shown the attractions of the metropolis and its suburbs, and the strides made in our pineapple industry at Wahiawa. During their visit a reception was given them at Aīnahāu.

NUUANU DAM INVESTIGATION.

Notwithstanding the amended plans for the construction of the Nuuanu dam according to the Kellogg plans—as mentioned in last Annual—troubles of various kinds occurred to keep the subject fresh and unassuring before the public. As a result, a special committee of investigation thereon was appointed by the legislature to examine and report. In pursuance thereof Mr. J. D. Schuyler, C. E., of San Francisco, was sent for to come and investigate the work. After careful examination he passed upon the work and allayed the feeling of alarm that had existed. With certain improvements and enlargement to a capacity of 3,300,000 gallons, he recommended that \$132,000 additional appropriation be made for its completion, which was duly made. In the meantime the new governor assigned to Secretary E. A. Mott-Smith the duty of examining all documents relating to its construction for

his deductions thereon, resulting in terminating the existing contract, preparatory to new arrangements for its completion.

IMMIGRATION MATTERS.

The successful opening of the movement to obtain settler laborers from Europe by the Board of Immigration, as shown in the last Annual, under charge of Mr. E. R. Stackable, in the arrival of the *Suveric* with 1,325 Portuguese from the Madeira Islands was followed in March by a goodly company of settlers from Malaga, Spain, per S. S. *Heliopolis*, which arrived here April 26th with 2,287 Spanish immigrants, of which 500 were children. In the distribution of these people to our different islands much satisfaction is expressed as to their character and capabilities. Over 300 stayed on Oahu, 100 going to Waialua; 332 went to the Hilo district, and over double that number to Maui.

June 27th the S. S. *Kumeric* arrived with 1,057 additional Portuguese, comprising 189 families; 306 males, 241 females and 510 children.

The second lot of Filipinos, 26 men, two women and two children, arrived February 25th per *Nippon Maru*, and the third (and probably the last) shipment came by the same vessel July 29th, 44 in number, consisting of 28 men, nine women and seven children.

The effort to procure laborers is suspended for the present, while that of the Filipinos is admittedly abandoned, owing to the obstacles besetting the movement, and its expense.

Of the Japanese immigration it is difficult to arrive at a clear solution of the complex problem. The systematized method of Japanese emigration companies to bring Japanese into the Territory for a brief stay, and then to forward them on to the Coast, together with such of our domiciled labor as could be induced by various allurements to leave plantation and domestic service, which was creating alarming conditions, was suddenly checked by the Immigration Act of Congress of February last, which excludes Japanese coolies coming to the United States from Hawaii and the Philippines. Agents and agitators in this city worked up a mass meeting of their countrymen and denounced the Act

"in the name of humanity, civilization and liberty in that it enslaved them permanently to Hawaii's capitalists." In spite of the law quite a number took successive steamers for San Francisco. This gradually ceased, then special boats were chartered to convey them to Vancouver. After much effort and various delays three ship loads of Japanese from these islands were landed at that port—which exodus the interested parties threatened to continue—but the movement met with a vigorous protest from the labor party in that city. Threats of dire consequence for breach of treaty was in the air for a time, but it is now learned that Canada's refusal to admit Japanese laborers from Hawaii will not be regarded as a breach of the treaty with Japan.

By revision of agreement with her Emigration Agencies the Japanese government now limits the number for Hawaii to 200 per month.

PLANTATION MATTERS.

Elsewhere is shown the completion of two ditch projects for the irrigation of cane lands. A result of the Kohala scheme (reported in last issue) follows early in the incorporation of the Puakea Plantation Co., to take over the interests of the Puakea Planting Co. and extend their operations on lands of the Wight Estate, and will develop the tract by aid of the ditch opened up last year.

Kemoo Land Co., holding lands in Waialua, Oahu, plan to plant the same in cane and will operate tributary to the Waialua Agricultural Co.

The Olaa Plantation, as an encouragement to settler-laborers offers an acre of land in fee to laborers who work steadily with them for three years at regular wages. So far, fifty Portuguese and thirty Spanish families have taken up the proposition.

The year 1907 is the banner year of Hawaii's sugar crop, being 440,017 tons, the next largest being that of 1903 with 437,991 tons.

The Hawaiian Commercial & Sugar Co., of Maui, also takes honors this same season, having turned out 44,130 tons, said to be the banner plantation crop of the world.

The Honolulu Plantation has added a filtration plant to its re-

finery outfit, thus putting it in position to turn out a refined product of sugar fully equal to that produced elsewhere, which should find a local market and leave no field for future importations.

FRUIT SHIPMENTS.

Prof. J. E. Higgins, of the Federal Experiment Station, personally conducted another fruit shipment to the mainland this past summer, consisting principally of pineapples and avocado pears which were carried as far East as Chicago, and introduced to the trade there in perfect condition. Favorable rates were also secured from the railroads for future shipments of tropic fruit, so that it now remains for the grower to simply place them on the market. Wherever these pines and pears were shown much interest and enquiry has been manifest. Mangoes and papayas, in addition, were delivered in good order at several of the Pacific Coast cities.

THE PINEAPPLE INDUSTRY.

As intimated in last issue the pineapple and canning industries were extending their operations in several directions and this year gives evidence of the rapid strides it is making toward a leading place in the commercial enterprises of the Territory, not only in the increased amount of the canned product, but the new and extended fields brought under cultivation, that steps are already in progress for still further increasing the canning facilities at several points. In this connection it is appropriate to mention that Castle & Cooke, and Brewer & Co., two of the leading sugar agencies of this city, have assumed the agency of some of these canning concerns.

In June the canning factory of the Hawaiian Pineapple Co. at Iwilei, enlarged from the plant at Wahiawa, began operations with cans supplied by the American Can Co., also at Iwilei. During the busy season the cannery employs 300 hands, one-third being women and girls. Its season's pack just closed is given as two and a quarter million cans.

The Hilo cannery, completed this year, and making its own

cans, turns out as its first season's work 4,000 cases. Bruner's cannery, in Kona, a well equipped concern and making also its own cans, completes its season's work with some 6,000 cases, and expects to largely exceed this next year.

The Haiku Co., of Maui, reports a very successful season, with a bright outlook, and Kauai reports also indicate satisfactory progress.

With the favorable result and report on the fruit shipments to Chicago, the outlook for the export of fresh pineapples should soon make its impression.

BUSINESS MATTERS.

The corporation of C. Brewer & Co. declared a million dollar stock dividend in July last, its reserve fund accumulation of several years, doubling its capital stock and issuing 10,000 paid up shares to its fortunate shareholders.

Catton, Neill & Co. are constructing a new machine shop and a power house at Kakaako, to meet the needs of their extending business.

The Commercial Club had its opening July 20th, 1907, in its selected quarters, occupying the fourth floor of the McCandless building. This event marks an era in the business life of Honolulu and is aimed to supply a need both for local and visiting business people. The Club opened house with a membership list of one hundred and sixty-eight.

Changes of business locations have been few this year, the principal ones being that of the Hawaiian Board Rooms from the Progress Block to premises of their own, corner of Alakea and Merchant streets, a gift from Mr. and Mrs. P. C. Jones.

Hopp & Co., furniture dealers, moved to the Lewers & Cooke building, King street, and the Coyne Furniture Co. have taken their vacated stores in the Young building.

Wm. C. Lyons has changed from Hotel street to King, near Fort.

NEW INDUSTRIES.

Several new business enterprises have been entered upon this year with a promising outlook, as follows:

The Waianae Lime Co., which organized early in the year, is erecting a double kiln, at Iwilei, of 200 barrels capacity each twenty-four hours, the plant for which was received in September. The Company owns a tract of lime rock of considerable area at Lualualei, Waianae, which will furnish them raw material for many years, and an easily constructed spur from the O. R. & L. Co.'s line will facilitate the handling of the crude product. Expert tests of the lime rock pronounce it excellent in quality.

Average imports of this product for the past three years show our annual needs to be 64,226 barrels, of the value of \$66,224, which would be a neat sum to keep at home.

Another project to supply at least local needs, is the enlargement of Love's Bakery and the installment of the new biscuit, cracker and fancy cake machinery of a capacity equal to all likely demands, as also entirely revolutionizing old hand methods in facilitating bread making. It is fitted with a modern Ferris-wheel oven, making it an up-to-date concern throughout. The plant will require a working force of twenty-five hands.

The local manufacture of soy, which has sought to supplant the imported article, has met with such success that a corporation has formed with a capital of \$60,000 to enlarge the works to the capacity of 3,000 tubs per month. The importation of soy has run as high as 100,000 tubs a year, so necessary an article is it to the food supply of the Japanese, and the high duty thereon favors the local product materially.

Still another enterprise is the recently incorporated Hawaiian Copra Co., capitalized at \$30,000, to set out and cultivate coconut groves of choice productive quality in a desirable tract of some 200 acres, at Kailua, in the Koolau district of this island.

Two Vineyard Companies have been in progress the past few years, one each on Maui, and in Kona, Hawaii, both of which are already extending their operations by increased capital from their earnings. The Kona concern, beside securing a desirable tract for additional culture, is installing a boiler and machinery for completion of their winery plant.

Mention is to be made of the establishment of a distillery in Kona, Hawaii, under Federal surveillance, for the manufacture of

Okolehao from the wild ti root, of a capacity of 2,250 gallons per month. Its product will be shipped to Honolulu bonded warehouse.

HAWAII'S TRANSPACIFIC YACHT.

Following up the successful Transpacific Yacht Race of 1906, initiative steps were taken by the Hawaii Yacht Club, in June last, toward securing a new craft to represent Hawaii in the coming contest of 1908. A committee was accordingly formed with H. E. Cooper as Chairman, to handle and finance the project. As a result it was decided to build a yacht here, for which \$10,000 has been raised by stock subscription. The craft will be distinctively Hawaiian, with as much island material as possible in her construction, and is to have a distinctive Hawaiian name. The design, with plans and specifications, were entrusted to the noted yacht designer, C. C. Crowningshield, and upon their receipt here work was entered upon at once by Sorenson & Lyle, to insure its completion in time for the coming event, which promises to be one of International interest.

NOTABLE VISITORS.

Among the many distinguished visitors of the year is to be noted that of Secretary Strauss, of the Department of Commerce and Labor, who accompanied Governor Carter on his return, July 31st, "to study within the scope of his Department the needs of this Territory," as he said, and spent some three weeks of intelligent investigation and enquiry upon all such and kindred subjects.

August 2nd, with the governor and party a visit to Pearl Harbor was made in the forenoon, thence by autos to Wahiawa and on to Waialua. Returning Saturday, a public reception was held in the Executive building in honor of Secretary and Mrs. Strauss and Hon. Nicholas and Mrs. Longworth, visiting here at the same time.

Tuesday the Secretary was entertained at luncheon at the Commercial Club, and on Thursday afternoon he met in conference with members of the Chamber of Commerce and the Merchants'

Association, at the Young Hotel, at which the immigration problem was considered; agriculture and commerce dealt with; labor conditions presented; lighthouse requirements and the injustice of the Coastwise laws in their application to these islands illustrated.

PUBLIC IMPROVEMENTS.

The attention given to public improvements have been more of completion and preservation rather than entering upon new projects. Work on wharf extension and harbor dredging has been in winding up of existing contracts preparatory to entering upon a season of activity under both territorial and federal direction. Street work has been well maintained in spite of road damages through excessive rains.

In the attention given Nuuanu Dam, the work on the Makiki reservoir addition to our water works system has come quietly to a successful close. This will afford material relief to Manoa and the southern suburbs.

Bids for a new Court house at Wailuku, to be of hollow concrete blocks, and for which \$25,000 was appropriated, were called lately, and the work assigned. Like steps were taken toward the new high school building for this city, to occupy the Merten's premises, opposite Thomas Square, on Victoria street, but some delay may occur in its start, on legal grounds.

It is likely that work on the extension of Kahauika Post will be undertaken shortly, instructions having been received last June to double its capacity. This Post was occupied for the first time, April 15th, 1907.

Work is progressing on the Makapuu lighthouse and its accompanying buildings, off Waimanalo, as also on the harbor entrance light of this port.

The Kunst lot at Kapiolani Park, secured by the County of Oahu for a beach recreation place for the public, has been provided with bath houses, dressing rooms, dancing pavilion and lounging room, and the bathing place deepened by removal of the coral.

PROSPECTIVE KAHULUI.

Leaseholders of Kahului property met with the owners of the lands there, in June last, and surrendered their leases preparatory to laying out the town on modern lines. The lower levels will be raised, sewerage and the water system improved, and fire protection provided. This work of remodeling the town will progress gradually, and until new lots are laid out old tenants will occupy their premises as tenants at will. Vested interests will not be disturbed until this has been done, and time sufficed for the erection of better buildings in their place.

The construction of its breakwater and harbor dredging is nearing its finish at the private expense plans contemplated, but changed somewhat from those originally designed. Further and more extended work for this developing important shipping port of Maui will await government assistance for its completion.

REAL ESTATE AND BUILDING.

While the transactions in realty for the year may fairly claim activity as to number, the records indicate few transfers of magnitude, and many at figures below assessor's values. A number of foreclosures have been made which failed to clear the obligations thereon. The spirit of the market has not been encouraging for sales of high class properties as evidenced in the withdrawals recently of the Isenberg and Cooper offerings.

A long mooted question, the site for the Federal buildings, has been settled at last by the selection of the Mahuku property, running through from King street to Merchant. Some delay occurs in the transfer, clear title to which may call for condemnation proceedings.

Other business property sales include the Progress block to the Japanese government for its Consulate; the remainder of the old Sailor's Home lot, opposite the Police station, to the Yokohama Specie Bank for the erection of a building for its use, and the Magoon block, corner of Merchant and Alakea streets, to C. M. Cooke, subject to a long existing lease.

Important sites in Manoa, from the old Metcalf tract, have been

secured for the location of the Mid-Pacific Institute, to embrace the Kawaiahao Seminary and the Mills' Institute, work on which are already in progress.

Building has not shown activity of late. Apart from the prosecution of work on the new buildings at Punahou, a few pretentious residences, and the completion of the Kahauiki Post, work has been desultory and light. Permits for the year show a decline in value of \$26,000, the total being \$331,500, including the Harrison and McCandless blocks, finished in this period. The outlook, however, is brighter, for there are a number of important structures planned for in schools and accompanying buildings in this city and on the other islands, besides the bank building mentioned, excavations for which are completed.

The corner stone of the T. H. Davies' Parish house in the St. Andrew's Cathedral grounds, was laid May 9th, 1907, with ceremonies, and work thereon is going forward.

FIRES AND ALARMS.

These misfortunes have been fortunately few for the year, the more important occurrences being attended by circumstances strongly pointing to incendiarism, but insufficient in proof for conviction save in one case.

December 19th, 1906, the fine new residence of J. F. Waldron, at Manoa, just about completed, was entirely destroyed by fire during the early evening hours, from alleged spontaneous combustion. The value of the structure was \$12,000; amount of insurance thereon \$10,000.

Shortly after midnight of June 4th, 1907, the new residence for the president of Oahu College, in course of construction just mauka of the new dormitories, etc., of the college, was burned to the ground. Suspicions of incendiarism prevailed, but investigation failed to elicit convincing proof. Insurance of \$10,000 has been paid thereon.

Early in August a small building at Kakaako of not much value was destroyed by fire. Shortly afterwards, by the prompt response to the firemen to a "still alarm" about 8 a. m. of Sunday,

the 18th, an incendiary blaze in the Kerosene warehouse at Kaakaoko was quenched just in time to avert a serious explosion and conflagration. The suspicions connected with the case were followed up for several weeks, resulting in the arrest, confession and conviction of the guilty party.

Sing Loy's feed warehouse on Nuuanu street, above Merchant, was discovered on fire in the early hours of December 2nd, cause of which is unknown. The place was gutted and adjoining property saved by strenuous effort. Loss claimed at over \$7,000; partly insured.

Fire broke out in the boiler house of the Waimanalo Sugar Co., Koolau, at two a. m. of December 10th. Prompt response of the laborers and courageous energy in battling the flames overcame the danger after an hour's fierce fight; confining it to the house of origin and saving all those adjoining. Damage estimated at \$4,000.

SHIPPING CASUALTIES.

Schooner *Lavinia*, of 40 tons register, from windward ports for Honolulu, was caught in a Kona gale and went ashore off Waikiki, December 30, 1906, and went quickly to pieces, the officers and crew all swimming safely to shore.

British bark *Carollton*, en route from Newcastle to this port, with coal, was lost on Midway Island the latter part of December, 1906. Her crew was rescued by the cable ship *Restorer*, hence for that purpose, and taken to Vancouver.

March 4, 1907, the British ship *Loch Garvie*, from Nitrate ports for Honolulu, grounded off Kamalo, Molokai, mistaking it for this port. By aid of the tug, the *Manning*, and a couple of the Inter-Island steamers which hurried to the rescue, she was hauled off on the 7th without material damage and towed to port.

The same month an incendiary attempt was made to fire the British ship *Claverdon*, lying at the dock, Honolulu, but prompt response of the Fire department overcame the danger.

Bark *Tillie Starbuck*, of the Brewer line, with a full cargo of goods from New York for this market, was abandoned at sea off the coast of Chile; the captain and crew making their way by open

boats to Coquimbo, arriving August 23rd. No particulars of the misfortune has been received here.

Bark *Nuuanu*, of the same line, left New York for Honolulu, August 13th, with a full cargo of staple goods, but springing aleak a short distance out returned to port and after undergoing a week's repairs resumed her voyage.

Schooner *Spokane*, lumber laden, arrived November 17th, in distress, having sprung her mainmast head in a heavy north-east gale en route from Kailua to Hilo, which necessitated bearing away for this port for repairs.

Norwegian steamer *Admiral Borresen*, lumber laden from Seattle, en route for Taku, China, arrived November 19th dismantled and badly damaged in a heavy gale which occurred November 2nd, wherein great seas striking the ship broke loose the deck load of heavy timbers, breaking off both masts, crushing in the deck house, carrying away long sections of bulwarks on the star-board side, and rendering her saloon and forward cabins a mass of ruins.

Steamer *James Makee*, in entering the harbor of Kamalo, Molokai, November 23rd, through disabled steering gear, went on the reef and by force of the wind was driven over to deep water, from which position she finally worked out safely with high tides.

WEATHER CONDITIONS.

Probably few year's records will show a heavier rainfall for the winter season throughout the islands than that of 1906-07. Rains set in December 13th, giving 3.16 inches in this city in 24 hours, as against an average of 0.49 for the past seven years. Copious rains followed on the 21st to 23rd. The latter part of the month much rain was reported from many stations, and on the night of the 30th an electric storm prevailed, doing much damage in various parts. The new year was ushered in with a continuation of rain and thunder.

Sunday, February 3rd, the city was deluged, the record showing 3.28 inches for the 24 hours; street damages estimated at \$12,000. About the same time a big storm prevailed on Maui, damaging roads and cane fields generally.

Unusual rain spells for summer occurred on most of the Islands in August. Windward Hawaii experienced several days of a heavy continuous downpour. In Hilo the Electric Light plant was badly damaged by the swollen stream.

KOA AND OHIA LUMBERING PROSPECTS.

Toward the close of 1906 the American-Hawaiian Mahogany Lumber Co., a California corporation, was reported formed to operate leased lands in the Kau and South Kona districts to get out and ship koa logs to the Coast. One hundred men were reported employed, with W. W. Wilson as local manager.

The koa lumber mill mentioned in last issue as to be erected in the vicinity of the Volcano House, was in process of construction in March, estimated to cost some \$50,000. Since that time a new branch of its industry has opened up in the demand from the mainland for ohia railroad ties, a full cargo of which were shipped from Hilo in June and contracts have been signed with the Atchison, Topeka & Santa Fe Railroad to deliver 500,000 ties yearly for the next five years. To facilitate its operations the company is extending its railroad eleven miles, and will connect at Glenwood with the Hilo Railroad Co.'s line.

In October the company voted to double its capital stock, \$200,000, so as to operate in several sections of the forest at once in getting out ties on their contract.

RUBBER GROWING.

Interest in the growth of rubber trees throughout the islands is taking a firm hold. In the early part of the year the Hawaiian Rubber Growers' Association formed on Maui, with headquarters at Kahului, for the promotion of its interests. In October a convention was held at Nahiku, at which many of the members attended by chartered steamer. Parties interested in the development of this new industry gathered from Honolulu, Lahaina, Kahului and other points for attendance on this, the first rubber convention on American soil, and the few days devoted to prac-

tical demonstration of its commercial possibilities was assuredly a success.

Four Maui companies are reported to have cleared 1,000 acres, of which 800 are planted, besides which the Hana and Kipahulu sugar plantations are utilizing their gulches for the growth of rubber. One company at Nahiku is reported to have several thousand trees which will be ready to tap next spring. The Pacific Development Co., for rubber growing in Puna, Hawaii, organized early in 1907, with a capital of \$30,000. Fifty acres were planted in August, with the expectation of doubling it by the end of the year.

Other localities are being looked into for desirability as tracts for rubber culture and a number of sugar plantations are urged to plant their waste places to rubber, like the two above mentioned, both from a productive and rainfall influence point of view.

OCEANIC-AUSTRALIAN LINE.

The Oceanic S. S. Co. discontinued its service to the Colonies with the return of the Sonoma in May last, owing to the failure of Congress to grant a subsidy, and the withdrawal of the New Zealand mail contract. It is hoped this is but a temporary suspension, and that Congress will grant the needed aid to maintain a regular mail and passenger service between San Francisco and the Colonies. New Zealand, Samoa and Honolulu have greatly missed the conveniences of this line, and the terminal ports more.

MINISTERIAL CHANGES.

It is a coincidence worthy of note that three of the Protestant foreign churches of this city should receive new pastors within a few weeks of each other in the same year.

Owing to ill health Rev. J. Walter Sylvester, D. D., resigned the pastorate of Central Union Church, and has been succeeded by Dr. Doremus Scudder, for several years past the efficient Secretary of the Hawaiian Board.

Rev. C. D. Edwards resigned from the pastorate of the Christian Church to return to the mainland, and has been succeeded by Rev. A. C. McKeever.

Rev. David Crane relieves Rev. John Wadman from the pastorate of the Methodist Church, to enable him to take general supervision of the work of that denomination among the different nationalities throughout the islands, principally Japanese and Koreans.

VOLCANIC ERUPTIONS.

Among the events of the year of unusual interest was an eruption from the slope of Mauna Loa, some distance below the summit on the Kau side, which occurred about midnight of January 9th, a descriptive account of which appears on pages 131-35 of this issue. The eruption was preceded by earthquakes of unusual character which continued at intervals till the 11th, seven being felt at Kau on the closing date. A noticeable feature of the eruption was the density of sulphurous smoke attending it, the withering effect of which on nearly all vegetation was severe, even in sections remote from the course of the flows.

Kilauea became active January 25th and continued so for some weeks, slowly filling up the crater, then gradually subsiding by fitful spells.

NECROLOGY FOR 1907.

Among those of the year who have "ceased from their labors" and gone to their reward are many of well known early, or prominent, residents, several of whom died abroad, viz.: John Ena, in California; Junius Kaae, Henry E. Highton, Captain W. B. Godfrey and Mrs. M. A. Gray, in San Francisco; Dr. C. B. Greenfield at Honokaa, Andrew Brown, Mrs. Mary Castle, H. J. Nolte, A. B. Loebenstein at Hilo, Mrs. S. Savidge, Geo. D. Gear, Geo. Cockett at Paia, J. M. Horner at Kukaiau, Rev. J. Kauhane, David A-i, John Chas. Peterson ("Diamond Head Charlie"), Mrs. Mary E. Parker ("Mother Parker"), aged 102 years, Joao Moniz at Kohala, aged 104, Mrs. T. H. Davies in England; Alex. Garvie, and Chas. Creighton.

MISCELLANEOUS.

A movement is on foot for the establishment of a Children's Hospital in Honolulu, toward which a prominent Kauai resident agrees to give \$50,000 for its construction if a like sum is secured

for endowment. Two contributions of \$10,000 each come from Germany.

The Floral Auto and Pa-u Riders parade is becoming a feature of Washington's birthday celebration in this city, that for 1907 being more elaborate and spectacular than heretofore. Beside a larger company of pa-u riders further interest obtained by its closing exhibition of competitive horsemanship at the baseball grounds.

Improvement in sugar shipment facilities have been made this year at the railroad wharves, whereby sugar is now delivered to four hatches of large steamers at the rate of twenty-two sacks a minute.

The Country Club had its opening April 27, 1907, on which occasion a general reception, or open house, was held for the society of Honolulu, which was very generally attended in recognition of the event.

THE first display of the Chinese flag in these islands was in July, 1854, by the arrival of the Chinese ship *Hamilton*, from San Francisco, en route to the Caroline Islands. She was an American vessel owned in China, manned by Chinese and seeking a cargo of hogs for the California market.

A NEAT TRIBUTE.—“I have seen much of the world. I am familiar with those places which are the favored lands for tourists and my eight days' stay here has convinced me that there is no land on the face of the earth, considering climate and population, and considering beauty and attractiveness of scenery and charms of hospitality, which offers so much to the tourist either in health or pleasure as this Eden of the Pacific.”—*From Address of Secretary Straus.*

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mill (Corrected to Dec. 1, 1907.)

NAME.	LOCATION.	MANAGER.	AGENTS
Apokaa Sugar Co.*	Ewa, Oahu.....	G. F. Renton....	Castle & Cooke
Ewa Plantation.....	Ewa, Oahu.....	G. F. Renton....	Castle & Cooke
Gay & Robinson*....	Makaweli, Kauai..	Gay & Robinson..	Waterh'se Tr. Co.
Grove Farm*.....	Nawiliwili, Kauai..	Ed. Broadbent....	Hackfeld & Co.
Hakalau Plant. Co...	Hilo, Hawaii.....	J. M. Ross.....	Irwin & Co.
Halawa Sugar Co....	Kohala, Hawaii...T. S. Kay.....	Waterh'se Tr. Co.	
Hamakua Mill Co...	Hamakua, Hawaii..	A. Lidgate.....	Davies & Co.
Hawi Mill & Plant...	Kohala, Hawaii...J. Hind.....	Hind, Rolph & Co.	
Haw. Agr. Co.....	Kau, Hawaii.....	W. G. Ogg.....	Brewer & Co.
Haw. Com. & S. Co...	Puunene, Maui...F. F. Baldwin...	Alex. & Baldwin	
Hawaiian Sugar Co...	Makaweli, Kauai..	B. D. Baldwin....	Alex. & Baldwin
Hawaii Mill Co.....	Hilo, Hawaii.....	W. H. Campbell..	Hackfeld & Co.
Hilo Sugar Co.....	Hilo, Hawaii.....	John A. Scott....	Irwin & Co.
Honolulu Plant. Co...	Halawa, Oahu....Geo. Ross.....	Irwin & Co.	
Honokaa Sugar Co...	Hamakua, Hawaii..	K. S. Gjerdrum....	Schaefer & Co.
Honomu Sugar Co...	Hilo, Hawaii.....	Wm. Pullar.....	Brewer & Co.
Hutchinson S. P. Co.	Kau, Hawaii.....	C. Wolters.....	Irwin & Co.
Kaeleku Sugar Co...	Hana, Maui.....J. Chalmers.....	Grinbaum & Co.	
Kahuku Plantation...	Kahuku, Oahu....Andrew Adams....	Alex. & Baldwin	
Kekaha Sugar Co...	Kekaha, Kauai...H. P. Faye.....	Hackfeld & Co.	
Kilauea S. Plant. Co.	Kilauea, Kauai...F. Scott.....	Irwin & Co.	
Kipahulu Sugar Co...	Kipahulu, Maui...H. Haneberg....	Hackfeld & Co.	
Kihei Plantation*...	Kihei, Maui.....A. J. McLeod....	Alex. & Baldwin	
Kohala Plantation...	Kohala, Hawaii...Geo. C. Watt....	Castle & Cooke	
Koloa Sugar Co.....	Koloa, Kauai....W. Weinzheimer..	Hackfeld & Co.	
Kona Developmt Co...	Kona, Hawaii....W. M. McWayne..	Hawn. D'l'pmt Co.	
Kukaiau Mill Co.†...	Hamakua, Hawaii..	E. Madden.....	Davies & Co.
Kukaiau Plant. Co...	Hamakua, Hawaii..	Albert Horner....	Hackfeld & Co.
Laie Plantation.....	Laie, Oahu.....S. E. Wooley....	Alex. & Baldwin	
Laupahoehoe S. Co...	Laupahoehoe, Ha.C. McLennan....	Davies & Co.	
Lihue & Hanam'lu Mill.	Lihue, Kauai....F. Weber.....	Hackfeld & Co.	
Makee Sugar Co.....	Kealia, Kauai....G. H. Fairchild..		
Maui Agrl. Co.....	Haiku, etc., Maui..	H. A. Baldwin....	Alex. & Baldwin
McBryde Sugar Co...	Wahiawa, Kauai..	W. Stodart.....	Davies & Co.
Niulii Mill & Plant...	Kohala, Hawaii...Robert Hall.....	Davies & Co.	
Oahu Sugar Co.....	Waipahu, Oahu...E. K. Bull.....	Hackfeld & Co.	
Olaa Sugar Co.....	Olaa, Hawaii....Ino. Watt.....	Bishop & Co.	
Olowalu Sugar Co...	Olowalu, Maui...Geo. Gibb.....	Irwin & Co.	
Onomea Sugar Co...	Hilo, Hawaii....John T. Moir....	Brewer & Co.	
Ookala Sugar Co...	Ookala, Hawaii...W. G. Walker....	Brewer & Co.	
Paauhau S. Plant. Co.	Hamakua, Hawaii..	Jas. Gibb.....	Irwin & Co.
Pacific Mill (†)....	Hamakua, Hawaii..	Aug. Ahrens.....	Schaefer & Co.
Pepeekeo Sugar Co...	Hilo, Hawaii....Jas. Webster....	Brewer & Co.	

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands—Continued.

NAME.	LOCATION.	MANAGER	AGENTS.
Pioneer Mill Co., Ltd.	Lahaina, Maui.	L. Barkhausen.	Hackfeld & Co.
Puakea Plant. Co.*.	Kohala, Hawaii.	H. R. Bryant.	Davies & Co.
Puako Plantation.	S. Kohala, Haw.	J. C. Searle.	Hind, Rolph & Co.
Union Mill Co.	Kohala, Hawaii.	H. H. Renton.	Davies & Co.
Waiakea Mill Co.	Hilo, Hawaii.	C. C. Kennedy.	Davies & Co.
Waialua Agrl. Co.	Waialua, Oahu.	W. W. Goodale.	Castle & Cooke
Waianae Plantation.	Waianae, Oahu.	Fred Meyer.	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui.	C. B. Wells.	Brewer & Co.
Waimanalo S. Co.	Waimanalo, Oahu.	Geo. Chalmers.	Irwin & Co.
Waimea Sug. M. Co.	Waimea, Kauai.	Jno. Fassoth.	Castle & Cooke

Pacific Scientific Institution.

Application has been filed by a number of our foremost citizens for a fifty year charter under the above title, the objects of which as set forth, are: "To encourage in the broadest sense and most liberal manner investigation, research and discovery in the Pacific Ocean, and to make application of knowledge thereof to the improvement of mankind," for which purpose the corporation seeks authority to hold sufficient property to carry out its objects.

The incorporating petitioners are: F. C. Atherton, W. A. Bryan, J. B. Castle, C. H. Cooke, H. E. Cooper, T. C. Davies, W. F. Frear, A. F. Griffiths, P. L. Horne, F. J. Lowrey, W. Pfotenhauer, M. P. Robinson, W. O. Smith, L. A. Thurston and R. H. Trent.

The purpose of the Institution in detail is given as follows:

(a) To conduct, endow and assist investigation in any department of science, and to this end to coöperate with governments, universities, colleges, technical classes, corporations, learned societies, organizations and individuals.

(b) To appoint committees and experts to direct special lines of research.

(c) To publish and distribute documents.

(d) To conduct lectures, hold meetings and acquire and maintain a library.

(e) To purchase real estate, etc., or property real, personal or mixed—not to exceed in value \$10,000,000, and to lease or rent such property, and to construct such buildings, vessels and equipments as may be deemed necessary or convenient to carry on the work of the corporation.

(f) In general to promote the objects of the corporation, and to prosecute ethnographical, biological and general scientific surveys of the Pacific Ocean, and to amplify, apply and publish the results of such surveys, during the first fifteen years of the corporate life of the Institution, or until said work shall have been substantially accomplished.

HAWAIIAN SUGAR CROPS IN TONS, 1892-1907.

From Table Prepared for Hawaiian Planters' Association, by
W. O. Smith, Secretary.

(Earlier years from 1892 can be found in the Annual for 1907)

ISLANDS.	1902	1903	1904	1905	1906	1907
Production of Hawaii	121,295	170,665	122,865	126,408	137,280	143,891
" " Maui	56,726	83,776	77,988	100,434	102,960	104,777
" " Oahu	107,870	121,066	102,919	123,098	113,780	119,273
" " Kauai	69,720	61,484	64,606	76,314	74,783	72,081
Grand Total	355,611	437,991	367,478	426,248	429,213	440,017
HAWAII PLANTATIONS.						
Waiakea Mill Co.....	8,700	9,954	6,151	7,661	10,766	8,186
Hawaii Mill Co.....	985	1,503	1,728	1,438	1,825	1,800
Hilo Sugar Co.	9,255	13,108	7,701	9,971	11,781	11,649
Onomea Sugar Co.....	11,880	13,472	10,940	11,049	13,930	12,432
Pepesee Sugar Co.....	6,627	6,000	4,907	6,167	6,477	6,677
Honoum Sugar Co.....	6,235	6,384	5,489	5,909	5,882	5,802
Hakalau Plantation Co.....	11,700	11,293	8,396	10,862	12,869	11,914
Laupahoehoe Sugar Co.....	7,909	4,856	4,336	5,866	7,864	7,848
Ookala Sugar Plantation Co.....	1,157	3,942	2,214	3,712	3,223	5,352
Kukaiau Plantation Co.....	1,118	1,746	1,275	1,415	2,154	2,103
Kukaiau Mill Co.....	1,118	1,646	1,274	1,416	1,435	1,402
Hamakua Mill Co.....	2,105	6,950	4,691	5,925	6,358	6,835
Pauhau Sugar Plantation Co.....	1,322	9,136	7,533	8,006	8,795	7,857
Honokaa Sugar Co.....	3,089	8,587	7,402	6,895	7,940	6,898
Pacific Sugar Mill.....	2,517	6,059	3,388	4,342	4,341	2,931
Niulii Mill and Plantation.....	1,146	1,903	1,189	1,645	2,226	2,501
Halawa Plantation.....	575	1,860	1,016	925	1,046	1,615
Kohala Sugar Co.....	1,096	5,409	2,663	3,350	3,900	2,400
Union Mill Co.....	463	3,380	1,776	2,166	2,570	2,828
Hawi Mill.....	1,373	5,563	3,631	3,687	4,389	5,296
Kona Sugar Co.....	1,391	1,850	897	...	...	...
Hutchinson Sugar Plntn. Co.....	8,021	7,527	5,741	7,107	6,940	7,063
Hawaiian Agricul. Co.....	11,998	18,888	10,954	1,620	826	11,630
Puakea Plantation.....	307	306	201	262	406	400
Olaa Sugar Co.....	16,748	15,690	13,728	11,361	9,405	9,431
Puna Sugar Co.....	2,460	3,603	3,116	3,147	807	1,172
Puako Plantation.....	...	...	...	...	...	...
	121,295	170,665	122,865	126,408	137,280	143,891

HAWAIIAN SUGAR CROPS, 1902-1907 Continued.

MAUI PLANTATIONS.	1902	1903	1904	1905	1906	1907
Kipahulu Sugar Co.....	1,427	1,622	1,415	1,324	1,464	1,809
Hamoia Plantation Co....	1,748	.....	.....	.....	.....	.....
Hana Plantation Co.....	2,700	4,922	2,662	2,720†	850	2,702
Haiku Sugar Co.....	4,234	6,397	*	.....	.....	.....
Paia Plantation.....	4,146	7,856	13,521	17,820	19,861	20,220
Haw'n Coml & Sug. Co.	19,477	33,230	29,829	39,411	43,652	44,143
Wailuku Sugar Co.	5,934	7,490	6,451	7,516	7,828	7,425
Olowalu Co.....	1,055	843	1,125	1,652	1,635	1,448
Pioneer Mill Co., Ltd....	9,960	16,530	17,036	25,581	22,509	23,099
Kihei Plantation Co., Ltd.	5,562	5,629	5,461	4,410	5,161	3,926
Maui Sugar Co.....	483	257	485	.....	.....	.....
	56,726	84,776	77,985	100,434	102,960	104,772
OAHU PLANTATIONS.						
Waimanalo Sugar Co.....	2,985	3,218	2,963	3,428	4,148	3,186
Heeia Agricul. Co., Ltd..	631	.....	.....	.....	.....	.....
Iaie Plantation.....	430	724	597	857	1,112	873
Kahuku Plantation Co....	5,623	8,212	6,360	7,431	6,689	6,500
Waialua Agricultural Co.	17,001	19,800	18,682	19,722	20,788	22,614
Waianae Co.....	5,000	5,348	5,500	5,128	5,490	6,214
Ewa Plantation Co.....	38,775	33,162	29,797	32,380	29,302	31,790
Apokaa Sugar Co.....	901	610	874	454	865	461
Oahu Sugar Co.....	26,724	29,256	20,870	33,589	26,710	28,457
Honolulu Plantation Co.	9,800	20,736	16,376	20,106	18,646	19,178
	107,870	121,066	102,019	123,095	113,750	119,273
KAUAI PLANTATIONS.						
Kilauea Sugar Plntn Co.	3,672	3,012	1,850	2,290	2,700	3,844
Makee Sugar Co.....	11,232	8,215	7,840	8,335	7,986	6,696
Lihue Plantation Co.....	13,674	11,375	14,611	14,185	16,005	14,127
Grove Farm Plantation...	2,915	1,896	1,679	1,679	1,933	1,807
Koloa Sugar Co.....	5,001	4,825	6,172	6,172	5,570	5,553
McBryde Sugar Co.....	9,113	11,922	10,535	13,136	11,024	7,890
Hawaiian Sugar Co.....	11,480	10,324	11,493	19,062	18,616	20,140
Gay & Robinson.....	2,265	1,645	1,665	2,151	2,099	2,590
Waimea Sugar Mill Co....	565	540	627	1,305	1,550	1,425
Kekaha Sugar Co.....	8,978	7,064	7,447	7,318	6,626	7,329
Estate of V. Knudsen....	735	666	687	680	644	680
Total.....	69,720	61,484	64,606	76,314	74,753	72,081

*The Haiku Sugar Co., and Paia Plantation now comprise the Maui Agricultural Co.

†The Hana Plantation changes in name to the Kaeleku Plantation Co.

POSTAL SERVICE, TERRITORY OF HAWAII.

Corrected to December 1, 1907.

Frank J. Hare, Inspector in Charge.

Geo. W. Carr, Asst. Sup't. Railway Mail Service.

Jos. G. Pratt, Postmaster.

Jno. T. Stayton, Asst. Postmaster; Wm. McCoy, Chief Registry Clerk;
F. E. Colby, Chief Money Order Clerk; W. C. Kenake, Chief Mailing
Clerk; F. T. Sullivan, Supt. of Delivery.

POSTMASTERS ON HAWAII.

Hilo.....	Geo. Desha	Keauhou....	Mrs. H. L. Kawewehi
Pepeekeo.....	E. N. Deyo	Holualoa.....	L. S. Aungst
Honomu.....	Wm. Hay	Kailua.....	John P. Curts
Kawaihae.....	J. Laau	Kealakekua.....	Robt. V. Woods
Mahukona.....	R. R. Elgin	Napoopoo.....	R. Wassman
Kukuihaele.....	W. Horner	Hoopuloa.....	D. L. Keliikuli
Paauihau.....	Jas. Gibb	Kookena.....	L. P. Lincoln
Kamuela.....	Moses Koki	Pahala.....	T. C. Wills
Kohala.....	Miss M. R. Woods	Honuapo.....	C. P. Akamu
Paauiilo.....	Anthony Lidgate	Waiohinu.....	Anna H. McCarthy
Laupahoehoe.....	E. W. Barnard	Naalehu.....	Carl Wolters
Ookala.....	W. G. Walker	Hakalau.....	Wm. Ross
Honokaa.....	A. B. Lindsay	Olaa.....	John Watt
Mountain View.....	E. L. Rackliff	Papaaloo.....	Alfred C. Palfrey
Kalapana.....	Dan'l Kaloi	Lalamilo.....	J. C. Searle
Volcano House.....	D. Lycurgus		

POSTMASTERS ON MAUI.

Lahaina.....	Arthur Waal	Kipahula.....	Mrs. J. Glenn
Wailuku.....	L. M. Vetleson	Kahului.....	J. N. S. Williams
Makawao.....	A. F. Tavares	Paia.....	D. C. Lindsay
Hana.....	N. Omsted	Hamakuapoko.....	W. F. Mossman
Huelo.....	Wm. F. Pogue	Haiku.....	Jas. Lindsay
Puunene.....	H. P. Baldwin	Peahi.....	Geo. Groves
Kaupo.....	Jas. Keawe	Keanae.....	J. W. K. Halemano
Makena.....	D. Kapohakukimohewa	Waiakoa.....	Joaquin Vincent
Kihei.....	W. A. Sparks	Keokea.....	L. C. Akana
Honokohau.....	R. C. Searle		

POSTMASTERS ON OAHU.

Aiea (acting).....	Geo. Ross	Punaluu.....	D. Kaapa
Pearl City.....	J. P. Keppler	Waimanalo.....	A. Irvine
Ewa.....	Geo. F. Renton	Kahuku.....	Andrew Adams
Waipahu.....	J. H. Travis	Heeia.....	Frank Pahia
Waianae.....	F. Meyer	Wahiawa.....	H. R. Grant
Waialua.....	W. W. Goodale	Haleiwa.....	St. Clair Bidgood
Laie.....	S. W. Woolley	Waikane.....	Sam'l Waiwi
Kahana.....	A. Opunui		

POSTMASTERS ON KAUAI.

Lihue	Frank Crawford	Kealia.....	Jno. W. Neal
Koloa	A. Buchholtz	Kilauea	F. Scott
Hanapepe.....	H. H. Brodie	Kekaha.....	A. F. Knudsen
Makaweli.....	B. D. Baldwin	Waimea.....	C. B. Hofgaard
Eleele.....	Mrs. J. I. Silva	Hanalei.....	N. F. Sanborn

POSTMASTERS ON MOLOKAI AND LANAI.

Pukoo	D. K. Ilae	Keomoku	Chas. Gay
Kalae	Ellen Sobey	Kalaupapa.....	J. S. Wilmington
Pelekunu	J. Kapahu	Kaunakakai	F. Minamina
Halawa	M. H. Kane		

POST OFFICE INFORMATION.

Office hours of the General Delivery are from 6 a. m. to 12 o'clock midnight. On legal holidays the time is from 8 a. m. to 9 a. m. On Sundays, from 9 to 10 a. m.

Hours of the Stamp and Registry Department are from 8 a. m. to 6 p. m., and of the Money Order Department from 8.30 a. m. to 5 p. m.

The General Delivery is open (except Sundays and holidays) from 6 a. m. till midnight, for the delivery of mail, registering of letters and issuance of Money Orders.

Inter-Island mails close forty-five minutes before the sailing of steamers. For foreign ports the ordinary mails close one hour prior to steamers' departure.

RATES OF POSTAGE, DOMESTIC.

First class matter (letters, etc.).....	2 cents per oz. or fraction
Second class (newspapers and periodicals).....	1 cent per 4 oz. or fraction
Third class (books, circulars).....	1 cent per 2 oz. or fraction
Fourth class (merchandise—limit of weight 4 lbs.).....	
.....	1 cent per oz. or fraction
Registration Fee (additional postage).....	.8 cents
Immediate Delivery Stamp (additional to postage).....	10 cents
Postal Cards	1 cent each

FOREIGN POSTAGE.

The rate to all foreign countries except Canada and Mexico are: Letters per ounce or fractional part, 5 cents for first ounce, and 3 cents for each additional ounce. Printed matter, 1 cent for each 2 ounces or part. Postal Cards, 2 cents each.

Parcels of Merchandise, 12 cents per pound. Limit of weight, 4 pounds, 6 ounces.

REFERENCE LIST OF PRINCIPAL ARTICLES

That have appeared in the Hawaiian Annuals, 1875-1907.

[In consequence of frequent inquiry for various articles that have appeared in the Annuals, their time of issue, etc., the principal articles are here classified under their respective subjects for handy reference.]

AGRICULTURAL.

- History of Sugar Industry of Hawaiian Islands, by T. G. T., 1875, p. 34.
History of Coffee Culture in Hawaiian Islands, by T. G. T., 1876, p. 46;
1895, p. 63.
History of Rice Culture in Hawaiian Islands, by T. G. T., 1877; p. 45.
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WHAT IS SAID OF THE HAWAIIAN ANNUAL.

EXTRACTS FROM PRESS COMMENTS.

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Organized 1903.

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Constitution revised 1863. Annual Meeting June.

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Recorder	R. W. Andrews
Treasurer	L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting in April

President	T. Clive Davies
Vice-President	Edgar Wood
Rec. Secretary	M. G. Johnson
Treasurer	C. H. Atherton
General Secretary	Paul Super
Physical Instructor	Dr. E. H. Hand

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

President	Mrs. E. W. Jordan
Vice-President	Mrs. B. F. Dillingham
Secretary (Acting)	Mrs. C. Montague Cooke
Treasurer	Mrs. B. L. Marx
General Secretary	Miss C. O. Moyer

WOMAN'S CHRISTIAN TEMPERANCE UNION OF HAWAII.

Organized December, 1884.

President	Mrs. J. M. Whitney
Vice-Presidents—	Mrs. D. Scudder, Mrs. P. C. Jones.

Recording Secretary	Miss Florence Yarrow
Cor. Secretary	Mrs. E. W. Jordan
Treasurer	Mrs. Lydia Coan
Auditor	W. W. Hall

FREE KINDERGARTEN AND CHILDREN'S AID ASSOCIATION.

Organized 1895.

President	Mrs. E. B. Waterhouse
Vice-Presidents—	Mrs. S. B. Dole, Mrs. F. J. Lowrey, Mrs. Theo. Richards.
Recording Secretary	
Treasurer	Mrs. F. M. Swanzy
Financial Secretaries—	Miss M. Hopper and Mrs. W. F. Frear.
Auditor	W. L. Howard

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President	S. B. Dole
1st Vice-President	Rev. A. Mackintosh
2nd Vice-President	Mrs. C. du Roi
Secretary	Mrs. J. M. Whitney
Treasurer	Geo. P. Cooke
Manager	Mrs. E. W. Jordan

AMERICAN RELIEF FUND.

Organized 1864. Meets annually Feb. 22.

President	Robt. Lewers
Vice-President	W. W. Hall
Secretary and Treasurer	W. O. Atwater

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting in June.

President	Mrs. A. Fuller
Vice-Presidents—	Mrs. S. B. Dole, Mrs. E. F. Bishop.
Secretary	Mrs. S. M. Damon
Treasurer	Mrs. E. W. Jordan
Auditor	E. W. Jordan

BRITISH BENEVOLENT SOCIETY.

Organized 1869. Meets Annually.

President (Ex-officio)	H. B. M's. Consul
Vice-President	Rev. A. Mackintosh
Secretary	R. Catton
Treasurer	George Davies
Relief Committee—	G. R. Ewart, J. C. Cook, W. H. Baird, F. Harrison, R. Anderson and H. E. McIntyre, with the above officers, comprise the committee.

GERMAN BENEVOLENT SOCIETY.

Organized August 22, 1856.

President	F. A. Schaefer
Vice-President	W. Pfotenhauer

Secretary John F. Eckart
 Treasurer B. von Damm
 Auditor

HAWAIIAN RELIEF SOCIETY.

Organized 1895.

President Mrs. C. S. Holloway
 Secretary Mrs. E. S. Cunha
 Treasurer Mrs. F. W. Macfarlane

RED CROSS SOCIETY.

Organized Sept. 2, 1907.

President S. B. Dole
 1st Vice-President Mrs. B. F. Dillingham
 2nd Vice-President J. R. Galt
 Secretary Mrs. W. W. Hall
 Treasurer C. H. Cooke

HOSPITAL FLOWER MISSION.

President Mrs. E. W. Jordan
 Vice-President Mrs. A. F. Judd
 Secretary Mrs. G. F. Davies
 Treasurer Miss von Holt
 Auditor E. W. Jordan

OAHU CEMETERY ASSOCIATION.

President A. S. Cleghorn
 Vice-President F. J. Lowrey
 Secretary D. Dayton
 Treasurer J. R. Galt

ANTI-SALOON LEAGUE OF HONOLULU, T. H.

Organized March 4, 1901.

President Rev. J. W. Wadman
 Vice-President Rev. W. D. Westervelt
 Vice-Pres. Honorary Mrs. J. M. Whitney
 Secretary L. A. Dickey
 Treasurer C. H. Dickey

PACIFIC (FORMERLY BRITISH) CLUB.

Organized 1852. Premises on Alakea Street,
 two doors below Beretania.

President A. S. Cleghorn
 Vice-President F. M. Swansy
 Secretary James G. Spencer
 Treasurer J. M. Dowsett
 Governors—F. Klamp, A. A. Wilder, L. E.
 Pinkham, A. L. C. Atkinson and E. Ivers,
 with the above officers, comprise the
 Board.

UNIVERSITY CLUB.

Organized 1905.

President Hon. A. S. Hartwell
 Vice-President A. Gartley
 Secretary S. M. Ballou
 Treasurer J. R. Galt

COMMERCIAL CLUB OF HONOLULU.

Organized Aug. 30, 1906.

President Geo. W. Smith
 Secretary E. H. Paris
 Treasurer R. H. Treat

SCOTTISH THISTLE CLUB.

Organized April 27, 1891.

Chief J. C. McGill
 Chieftain J. M. Mackinnon
 Secretary John Macauley
 Treasurer J. M. Macdonald
 Master-at-Arms J. H. Catton
 Club Room, Oregon Building, Union Street.
 Meeting on Friday, 7:30 p. m.

BUCKEYE CLUB.

Organized 1904.

President C. H. Dickey
 Vice-President F. W. Francis
 Sec. and Treas. Mrs. F. Sackwitz

HONOLULU SYMPHONY SOCIETY.

President Ernest Kopke
 Vice-President H. F. Wichman
 Secretary G. J. Boisse
 Treasurer J. Lightfoot
 Mus. Director and Librarian
 R. Rudland Bode

YOUNG MEN'S RESEARCH CLUB.

Organized

President C. G. Owens
 Vice-President W. C. Parke
 Sec. and Treas. I. H. Beadle

OAHU POLO CLUB.

President F. F. Baldwin
 Vice-President W. F. Dillingham
 Secretary Arthur Rice
 Treasurer E. W. Shingle
 Captain Geo. H. Angus
 Directors—The above officers and Harold Dil-
 lingham.

HONOLULU CHESS CLUB.

Organized

President S. M. Ballou
 Secretary and Treasurer A. A. Hobson
 Membership Committee—H. E. Cooper, J.
 Rosenstein, Alex. G. Hawes Jr.

HAWAIIAN RIFLE ASSOCIATION.

Organized Dec., 1885; revived 1905. (Affiliated with National Rifle Ass'n.)

President Jno. G. Rothwell
 Vice-President John Kidwell
 Secretary P. H. Burnett
 Treasurer
 Executive Officer J. H. Fisher

COUNTRY CLUB.

Organized 1906.

President Geo. R. Carter
 1st Vice-Pres. J. P. Cooke
 2nd Vice-Pres. E. A. Mott-Smith
 Secretary D. W. Anderson
 Treasurer J. O. Young
 Auditor E. M. Campbell

HAWAII YACHT CLUB.

Organized Oct., 1901.

Commodore H. E. Cooper
 Vice-Commodore Alex. Lyle
 Secretary and Treasurer T. H. Petrie
 Measurer O. L. Sorenson
 Captain A. Jaeger
 Regatta Com.—W. H. McInerny, C. T. Wilder,
 H. P. Roth.
 Directors—C. W. Macfarlane, Geo. Crozier, W.
 H. McInerny, Albert Waterhouse.

MYRTLE BOAT CLUB.

Organized Feb. 5, 1883.

President W. W. Harris
 Vice-President T. V. King
 Secretary J. F. Soper
 Treasurer I. Spalding
 Captain F. Bechert
 Trustees—Geo. Crozier, C. Jenkins.

HEALANI YACHT AND BOAT CLUB.

Incorporated Dec., 1894.

President A. L. C. Atkinson
 Vice-President M. M. Johnson
 Secretary H. O. Sullivan
 Treasurer D. L. Conkling
 Captain A. S. Walker

Vice-Captain F. H. Armstrong
 Commodore
 Vice-Commodore R. McCorriston
 Auditor C. P. Marques

HAWAIIAN ROWING ASSOCIATION.

President A. L. C. Atkinson
 Vice-President John F. Soper
 Secretary and Treasurer C. C. Rhodes
 Regatta Committee—C. C. Rhodes, M. M.
 Johnson and T. V. King.

OAHU COLLEGE.

President—Arthur F. Griffiths, A. B., History
 and Economics.
 Wilbur J. MacNeil—Chemistry and Natural
 Sciences.
 John S. Reed—Mathematics.
 Catherine E. B. Cox—Greek and History.
 Levi Cassius Howland, Sarah N. Ward—
 Commercial Department.
 Ethel D. Shaw, Anna Louise Hasforth—Ger-
 man-English.
 Jeane P. Holford—French.
 Edmund K. Brown—Latin.
 Mary C. Alexander—English.
 Charlotte P. Dodge—Science and Mathe-
 matics.
 Mary E. Bruce—Rhetoricals.
 R. Rudland Bode—Director of Music.
 Gertrude K. Brown—Instructor in Piano.
 Margaret E. Clarke—Organ and Piano.
 D. Howard Hitchcock—Art Drawing.
 Mrs. A. B. Ingalls—Instructor on Violin.
 F. M. Hardy—Stenog. and Typewriter.
 Mary L. Bettis, Olive J. Bettis, Mary May
 Thomas—Matrons.
 S. E. Lucas—Librarian.
 Jona. Shaw—Business Manager.
 Frank Barwick—Supt. of Grounds.
 H. G. Wooten—Engineer.
 Eunice C. Pratt, Marion L. Greene, Isabelle
 McCorriston—Assistants.

PUNAHOU PREPARATORY.

Principal—Chas. T. Fitts.
 Grace E. Moore—Eighth Grade.
 Mrs. J. W. MacNeil, Ruth Huntington—
 Seventh Grade.
 Mary Gray Borden—Sixth Grade.
 Anna F. Johnson, Isabel Gregg—Fifth Grade.
 E. A. B. Turner—Fourth Grade.
 Florence N. Carter—Third Grade.
 Mary Persis Winne—Vice-Principal, Second
 Grade.
 Claire H. Uecke—Kindergarten Director.
 M. B. Stephen, Clara F. Hemenway—Assist-
 ants.

KAWAIAHAO GIRLS' SEMINARY.

Miss Katheryn C. McLeod—Principal.
 Assistants—Misses Colwell, Edna Skinner,
 Nellie Waddington, Grace Howell.
 Teacher of Music—Mrs. Revenburg.
 Teacher of Piano—Mrs. W. J. Forbes.

Matron—Mrs. Reeves.
General Assistant—Miss Esther Kalino.

THE KAMEHAMEHA SCHOOLS.

Officers of Administration.

Perley L. Horne—President.
Uldrick Thompson—Vice-Principal.
John Lloyd Hopwood—Chaplain.
Clifford B. Livingston—Registrar and Business Agent.
John C. Anderson—Assistant Registrar and Business Agent.
E. C. Waterhouse, M. D.—Physician.
Ida M. Pope—Principal Girls' School.
Alice E. Knapp—Preparatory Department School for Boys.

FACULTIES.

School for Boys' Manual Department.

Perley L. Horne—President.
Uldrick Thompson—Vice-Prin. and Science.
David Kanuha—Tailoring.
Ira Eskew—Carpentry.
Albert Parsons—Agriculture.
C. G. Livingston—Mathematics, Music.
Jno. Lloyd Hopwood—History, Civics, Economics.
Ross C. Ingram—Forging, Engineering.
Minnie Reed—Geography, Reading.
Clifford B. Thompson—Asst. in Agriculture.
Mrs. Alice M. Bradstreet—Matron.
Mary G. Kimble—English.
Wm. S. Cookson—Machine Shop and Mechanical Drawing.
Geo. Hitchings—Carpentry.
Paul Kuesthardt—Printing.
R. N. Oliver—Military Instructor.
Ida M. Hickes—Supt. of Hospital.

Preparatory Department.

Alice E. Knapp.
Eugenia Thomas—Fifth and Sixth Grades.
Sarah A. Smith—First and Second Grades.
Maude Post—Third and Fourth Grades.
Helen Lisle, Nevada Moore—Class Teachers.
A. F. Perrott—Matron.
Assistants—Dora Todd, Margaret Anahu, Eliza Kahale. Capt. Nahora Hipa, Military Instructor.

School for Girls.

Ida M. Pope.
Francis Levier—English.
Frances A. Lemmon—Geography, Arithmetic.
S. Lillian Byington—Music.
Minnie Gallagher—Music.
Margaret E. Clarke—Organ.
Jennie Anderson—Nurse.
Catherine Bergner—Matron.
H. S. Carpenter—Drawing, Manual Training.
Marv L. Lawrence—Literature, History.
Carrie Church—Domestic Art.
Assistants—Helen K. Keoiki, Henrietta Scholtz, Margaret Williams, Irene Silva, Kaipo Senna.

HONOLULU (STEAM) FIRE DEPARTMENT.

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid department.

Chief Engineer—Chas. Thurston.
Asst. Engineer—Augustus Deering.
Honolulu Engine No. 1—Location, Central Station, cor. Fort and Beretania streets.
Mechanic Engine No. 2—Location, Central Station, cor. Fort and Beretania streets.
Chemical Apparatus No. 3—Location, Central Station, cor. Fort and Beretania streets.
Protection Hook and Ladder Co. No. 1—Location, Central Station, cor. Fort and Beretania streets.
Engine Co. No. 4—Location, cor. Wilder avenue and Piikoi street.
Engine Co. No. 5—Location, King street, near Reform School.

FIRE ALARM SIGNALS.

12. Cor. King and Fort.
13. Alakea and Beretania.
14. Bethel and Merchant.
15. Nuuanu and Queen.
16. Nuuanu and King.
17. Nuuanu and Hotel.
18. Nuuanu and Beretania.
21. Fort and Hotel.
23. Alakea and Hotel.
24. Alakea and Merchant.
25. Punchbowl and King.
26. Punchbowl and Queen.
27. South and Queen.
31. Fort and Queen.
32. Fort and Allen.
34. Allen and Kilauea.
35. Alakea-Halekauwila.
36. Richards and Queen.
37. Punchbowl and Allen.
41. King and River.
42. Kekaulike and Hotel.
43. Smith and Pauahi.
45. Beretania and River.
46. Maunakea and King.
47. Railroad Wharf.
48. Iwilei Road, opp. Fertilizer Works.
49. Cannery, opp. Iwilei Road.
51. Iwilei Road, opp. Oahu Jail.
52. Beretania and King.
53. Liliha and King.
54. King and Dowsett Lane.
56. Insane Asylum Road and School St.
57. King Street, 200 feet Ewa of Pumping Station.
58. King and Kalihi Road.
59. Middle and Rose.
61. Vineyard and River.
62. Vineyard St. and Nuuanu Ave.
63. Vineyard and Fort.
64. Vineyard and Punchbowl.
65. Beretania and Punchbowl.
67. Alapai and Beretania.
71. Liliha and School.
72. Liliha and Judd.
73. Pauoa and Nuuanu Avenue.
74. Nuuanu and School.
75. Fort and School.
76. Emma and School.
78. Pauoa Road near Bridge.
81. Alapai and King.

82. Victoria and King.
83. Kapiolani and Beretania.
84. Kapiolani and Green.
85. Pensacola and Lunalilo.
86. Pensacola and Beretania.
87. Piikoi and King.
91. Thurston Ave. opp. Magazine.
92. Pensacola and Wilder Ave.
93. Lunalilo, opp. Kewalo.
94. Keeaumoku St. and Wilder Ave.
95. Kewalo and Heulu.
96. Makiki and Dominis.
97. College and Dominis.
123. Makiki and Lunalilo.
124. Keeaumoku and Kinau.
125. Keeaumoku and King.
126. Punahou, opp. Bingham.
127. Alexander and Beretania.
128. King and McCully.
129. King and Punahou.
132. Waikiki Road, opp. Sunny South.
134. Waikiki Road and Kalua Road.
135. Kalua Road opp. W. R. Castle Place.
136. Waikiki Road opp. Moana Hotel.
137. Waikiki Road opp. Race Track.

PRINCIPAL PUBLICATIONS.

- The Hawaiian Gazette, issued semi-weekly by the Hawaiian Gazette Co., Ltd., on Tuesdays and Fridays. Walter G. Smith, Editor.
- Sunday Advertiser, issued every Sunday morning by the Hawaiian Gazette Co., Ltd. Walter G. Smith, Editor.
- The Daily Pacific Commercial Advertiser, issued by the Hawaiian Gazette Co. every morning (except Sunday). Walter G. Smith, Editor.
- The Daily Bulletin, issued every evening (except Sundays), by the Bulletin Pub. Co. W. R. Farrington, Editor. Weekly editions issued on Tuesdays.
- The Hawaiian Star, issued every evening (except Sundays), by the Hawaiian Star Newspaper Association. Frank L. Hoogs, Manager. Semi-Weekly issued on Mondays and Thursdays.
- The Guide, issued every Tuesday and Friday morning by the Guide Pub. Co.
- The Friend, Organ of the Hawaiian Board, issued on the first of each month. Rev. Doremus Scudder, Editor.
- The Angelican Church Chronicle, issued on the first Saturday of every month. Rev. A. Mackintosh, Editor.
- The Paradise of the Pacific, issued monthly. W. M. Langton, Editor and Publisher.
- The Planters' Monthly, issued on the 15th of each month. R. D. Mead, Editor.
- The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. L. G. Blackman, Editor.
- The Honolulu Times, issued monthly. Anna M. Prescott, Editor and Publisher.
- The Kuokoa (native), weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. Solomon Hanohano, Editor.
- Aloha Aina (native) issued every Saturday. Ed. Like, Editor.
- Kuokoa Home Rula (native), issued each Friday. Jos. M. Poepee, Editor.

- O. Luso (Portuguese), issued weekly on Saturdays. J. S. Ramos, Editor.
- A Liberdade, Portuguese weekly, published on Thursdays. C. Pereira, Editor.
- Sun Chung Kwoc Bo, tri-weekly, Chinese.
- The Yamato Shimbun, Japanese daily.
- Hawaii Shinbo, issued daily in Japanese.
- Hilo Tribune, issued weekly on Saturdays by the Tribune Pub. Co., Hilo. A. M. Burns, Editor.
- The Hawaii Herald, issued weekly at Hilo on Thursdays by the Herald Pub. Co. C. R. Buckland, Editor.
- The Maui News, issued weekly at Wailuku, Maui. H. M. Coke, Editor.
- The Garden Island, issued weekly at Lihue, Kauai. O. Omsted, Editor.
- THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

HONOLULU LODGES, ETC.

- Oceanic Lodge No. 371, F. & A. M.; meets on the last Monday in each month in Masonic Hall.
- Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.
- Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.
- Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.
- Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.
- Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.
- Nuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.
- Alexander Liholiho Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.
- Pacific Lodge, No. 822, A. F. & A. M.; meets at Masonic Hall every second Monday of the month.
- Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.
- Lei Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple.
- Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.
- Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.
- Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.
- Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.
- Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.

Canton Oahu, No. 1, P. M., I. O. O. F.; meets second Friday each month in Odd Fellows' Hall, Fort St.

Oahu Lodge, No. 1, K. of P.; meets every Thursday evening at Pythian Hall, cor. Beretania and Fort streets.

Mystic Lodge, No. 2, K. of P.; meets every Wednesday evening at Pythian Hall, cor. Beretania and Fort streets.

Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Pythian Hall.

Honolulu Temple, No. 1, Rathbone Sisters; meets in Pythian Hall, first and third Monday evenings of each month.

Wm. McKinley Lodge, No. 8, K. of P.; meets every Saturday evening in Pythian Hall.

Hawaiian Council, No. 689, American Legion of Honor; meets on second and fourth Friday evening of each month in Harmony Hall.

Oceanic Council, No. 777, American Legion of Honor, meets on the first and third Tuesdays of each month.

Hawaiian Tribe, No. 1, Improved Order of Red Men; meets on first and third Thursdays of each month at K. of P. Hall.

Court Lunalilo, No. 6600, A. O. of Foresters; meets at San Antonio Hall on first and third Fridays of each month.

Court Camoes No. 8110, A. O. F.; meets second and fourth Tuesday evening of month in San Antonio Hall.

Geo. W. de Long Post, No. 45, G. A. R.; meets the second Tuesday of each month at Odd Fellows' Building, Fort street.

Theo. Roosevelt Camp, No. 1, Dept. of Hawaii U. S. W. V.; second and fourth Saturdays, Waverly Hall, Bethel street.

Geo. C. Wiltsie Camp, Sons of Veterans; meets on third Tuesday of each month in San Antonio Hall.

Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at Harmony Hall every Monday evening.

Court Hawaii, No. 3769, Independent Order of Foresters, meets third Monday of each month.

Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at San Antonio Hall.

Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, King street near Fort.

Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets fourth Wednesday each month in Pythian Hall.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 34; meets first and third Sundays of each month at 7 p. m. in Odd Fellows' Hall.

Marine Engineers' Beneficial Association, No. 100; meets every second and fourth Monday nights at K. of P. Hall.

Kamehameha Lodge (native); meets last Thursday of each month in Odd Fellows' Hall.

Kaiukeaouli Lodge, No. 1 (native); meets on first and third Fridays each month in St. Antonio Hall.

PLACES OF WORSHIP.

Central Union Church, Congregational (Independent), corner Beretania and Richards streets; Rev. Doremus Scudder, D. D., pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.

Palama Chapel, J. A. Rath, Superintendent. Sunday school at 9:30 a. m. Gospel services at 7:30 p. m.

Methodist Episcopal Church, corner Beretania and Miller streets. Rev. David W. Crane, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

The Christian Church, A. C. McKeever, pastor. Sunday services at 11 a. m. and 7:30 p. m. at their house of worship, Alakea street, near King. Sunday school meets at 9:45 a. m.

Salvation Army, services held nightly at h'a'l cor. Nuuanu and King streets, with Sunday services at the usual hour.

Roman Catholic Church, Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

St. Andrew's Cathedral, Protestant Episcopal; entrance from Emma street, near Beretania. Rt. Rev. Henry Bond Restarick, Bishop of the Missionary District of Honolulu; Rev. Canon Alexander Mackintosh, Rev. E. T. Simpson. Holy Communion, 7; Sunday school, 10; morning prayer, litany and sermon, 11; Hawaiian service, 8:30; evening prayer and sermon, 7:30.

Chinese Congregation. Rev. Kong Yim Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.

St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m; evening prayer, 7:30 p. m. Rev. John Osborne, rector.

Christian Chinese Church, Fort street; Rev. E. W. Thwing, acting pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.

German Lutheran Church, Beretania St.; Rev. W. Felmy, pastor. Services on Sunday at 11 a. m.; Sunday school at 10 a. m.

Portuguese (Protestant) Mission; Rev. A. V. Soares, pastor. Services every Sabbath at the usual hour. Sunday school at 3 p. m. Chapel situated corner of Punch-bowl and Miller streets.

Reorganized Church of Jesus Christ, G. J. Waller, pastor. Services in new chapel on King street near Thomas Square; Sunday school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.

Seventh Day Adventists. S. D. M. Williams, pastor. Chapel in Printers' Lane. Sabbath school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.

Japanese Union Church (connected with Hawaiian Board Missions); Rev. T. Miyamori, pastor. Hold services at the Lyceum at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.

Japanese Church, Rev. G. Motokawa, pastor; Hold services in chapel on River street, near St. Louis College.

Japanese Church, cor. Kinau and Pensacola Sts., Rev. T. Okumura, pastor; hold regular services at the usual hours.

Bishop Memorial Chapel, Kamehameha Schools, Rev. J. L. Hopwood, Chaplain. Morning services at 11.

COUNTY OFFICIALS.

COUNTY OF OAHU.

Sheriff Curtis P. Iaukea
Clerk D. Kalauokalani, Jr.
Auditor Jas. Bicknell
Treasurer R. H. Trent
Supervisors—Frank R. Harvey (At-Large), Chas. Hustace, Jr., Jos. J. Fern, Saml. C. Dwight (Honolulu), F. K. Archer, (Ewa), A. E. Cox (Waiialua and Waianae), Jos. M. Kealoha (Koolau).
Deputy Sheriffs—Honolulu Wm. P. Jarrett. Koolauloa, L. K. Naone. Koolaupoko, Frank Pahia. Waianae, W. R. Gilliland. Waiialua, Oscar P. Cox. Ewa, Jno. Fernandez.
Road Supervisor and Supt. Garbage Dept.—Samuel Johnson.
Deputy Road Supervisor—David Crowningberg.
Civil Engineer—G. H. Gear.
Chief Engineer Road Dept.—H. G. Wooten.
Chief Engineer Fire Dept.—Chas. H. Thurston.
Asst. Engineer Fire Dept.—Aug. G. Deering.
Supt. Electric Light Dept. and Police and Fire Alarm System—W. L. Frazee.
Deputy County Attorney—C. H. Olson.
Prosecuting Attorney, Police Court—A. M. Brown.
Bandmaster Hawaiian Band—Capt. Henry Berger.
Supt. Kapiolani Park—Alex. Young.
Road Overseers—Ewa, G. W. Nawaakoa. Waianae, Fred Meyer. Waiialua, Chas. Kukea. Koolauloa, Andrew Adams. Koolaupoko, Solomon Peck. Waimanalo, Geo. Chalmers.

COUNTY OF MAUI.

Sheriff W. E. Saffrey
Attorney D. H. Case
Auditor Charles Wilcox
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